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Montana Economic Study

research report

part 2: THE INDUSTRIES OF MONTANA

Volume 2, Chapters 3-4

Manufacturing
The Construction Industry

Maxine C. Johnson

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Manufacturing
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JUNE 1970

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Montana Economic Study

Research Report

Project No. Montana P-31

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University of Montana
School of Business Administration
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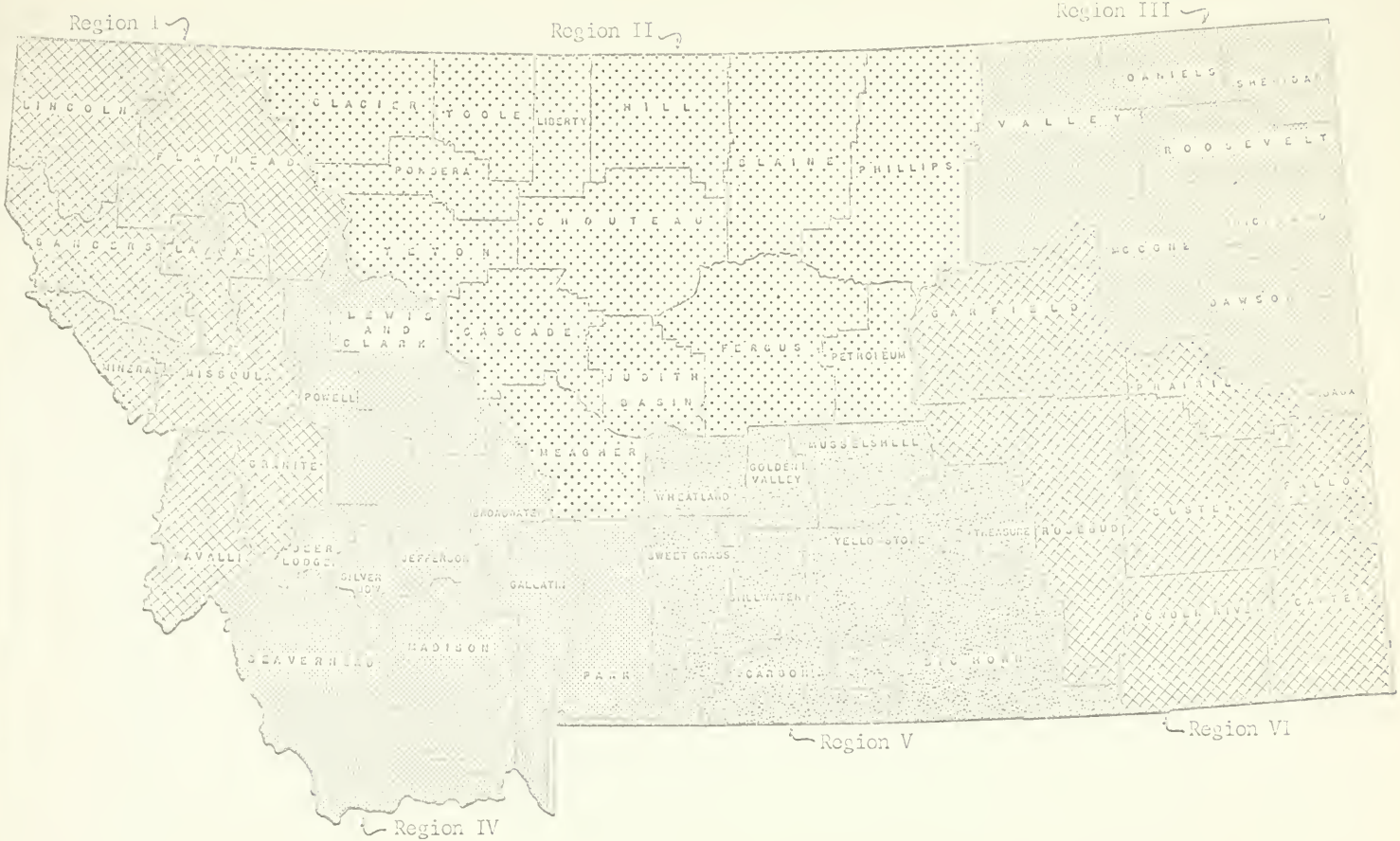
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CHAPTER 3

MANUFACTURING

It is possible to travel great distances in Montana without seeing a manufacturing plant larger than the local bakery or soft drink bottling plant. Montana's small population and its distance from large population centers made it unlikely from the beginning that the state would become a major industrial area. The report of the Twelfth Census of the United States, taken in 1900, noted that ". . . the manufacturing industries of the state are very largely limited to so-called neighborhood industries, the products being consumed at or near the point of production. The exception to this is the smelting and refining of ore."[1] Today one might add as exceptions "the refining of oil and the production of wood products," and the statement would still remain quite accurate. Indeed, Montana's

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1. U.S. Department of the Interior, Census Office, Twelfth Census of the United States, Taken in the Year 1900: Manufactures, States and Territories, vol. 8, pt. 2 (Washington, D.C., 1902), table 4, pp. 500-501.

contribution to total value added by manufacturing industries in the United States (0.49 percent in 1899) has declined substantially, to 0.12 percent in 1967.[2]

Approximately 10 percent of Montana's employed labor force worked in manufacturing industries in 1969--three-fourths of them in lumber and wood products, primary metals, and food products.[3] Twelve percent of total participation income (wages and salaries, other labor income, and proprietors' income) came from manufacturing in 1969.[4]

Manufacturing activity is concentrated in western Montana. In 1966, the 8 counties of Region I accounted for 45 percent of total manufacturing earnings in the state (table 3.1). Twenty-six percent of the region's earnings (participation income) came from manufacturing.

A General Survey

The next few pages are designed to provide an overall view of Montana's industrial activities. Following this general discussion are separate and more detailed analyses of the food products industries and of lumber and wood products. The state's other major manufacturing

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2. Computed from Montana data in tables 3.2 and 3.5 and United States figures from U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1957, Supplement to Statistical Abstract (Washington, D.C.: U.S. Government Printing Office, 1960), series P-8, p. 409; and U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1967, Summary Series, General Statistics for Geographic Divisions and States, Preliminary Report MC67(P)-2 (Washington, D.C., 1969), table 2, p. 3.

3. Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, Montana Annual Statewide Work Force Report for 1969 (Helena, Montana, February 1970), table C, and unpublished data.

4. U.S. Department of Commerce, Office of Business Economics, unpublished data (Washington, D.C., 1970).

TABLE 3.1

Earnings From Manufacturing, by Economic Regions
Montana, 1966

Region	Manufacturing Earnings ($000)	Percentage of Total Earnings
The state	160,000	10.6
Region I[a]	72,012	26.3
Region II[b]	28,591[c]	6.7
Region III[d]	1,442[e]	1.0
Region IV[f]	20,463[g]	6.2
Region V[h]	23,003[i]	9.5
Region VI[j]	1,426[k]	2.0

Sources: [Region earnings] U.S. Department of Commerce, Office of Business Economics, unpublished data (Washington, D.C., February 1969).

[State earnings] U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, vol. 47, no. 8 (August 1967), table 70, p. 37.

Notes: Earnings figures represent income from current participation in the labor force: wages and salaries, other labor income, and proprietors' income.

Total may not add due to rounding; and as a consequence of incomplete data for regions indicated, resulting from the exclusion of certain county data either to avoid disclosure or because of insufficient data. Total exclusions amount to $13.1 million.

[a]Includes Flathead, Granite, Lake, Lincoln, Mineral, Missoula, Ravalli, and Sanders Counties.

[b]Includes Blaine, Cascade, Chouteau, Fergus, Glacier, Hill, Judith Basin, Liberty, Meagher, Petroleum, Phillips, Pondera, Teton, and Toole Counties.

[c]Excludes data for Blaine, Petroleum, and Toole Counties which were withheld to avoid disclosure.

[d]Includes Daniels, Dawson, McCone, Richland, Roosevelt, Sheridan, Valley, and Wibaux Counties.

[e]Excludes data for McCone, Sheridan, and Wibaux Counties which were withheld to avoid disclosure.

[f]Includes Beaverhead, Broadwater, Deer Lodge, Gallatin, Jefferson, Lewis and Clark, Madison, Park, Powell, and Silver Bow Counties.

[g]Excludes data for Deer Lodge County which were withheld to avoid disclosure.

[h]Includes Big Horn, Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Treasure, Wheatland, and Yellowstone Counties.

[i]Excludes data for Golden Valley and Treasure Counties because of insufficient data.

[j]Includes Carter, Custer, Fallon, Garfield, Powder River, Prairie, and Rosebud Counties.

[k]Excludes data for Garfield and Prairie Counties which were withheld to avoid disclosure.

industries--the primary metals and petroleum refining--were described in Chapter 2, "The Mineral Industries."

A Brief History

Gold and silver brought the first residents to Montana; other metals--copper, lead, and zinc--kept some of them here. These early mine explorations also provided the basis for a major manufacturing industry. In 1899, smelting activity was chiefly concerned with copper and lead. A number of silver mills, established in earlier years, closed with the price decline of 1892 and silver was produced only as a by-product. A satisfactory process for handling zinc ore had not yet been developed. The Twelfth Census reported that almost 5,000 persons were employed in copper and lead smelting and refining in 1899. These workers comprised 48 percent of all manufacturing employees at that time, and the value of products attributed to copper and lead smelters and refineries was equal to 79 percent of total value produced by manufacturers in Montana that year (table 3.2).

Underground mines needed mine timbers; miners needed lumber to build homes. As mining and smelting activities expanded, a lumber industry developed in the timbered areas of western Montana. By 1899, it employed 2,400 persons and was the only other major manufacturing industry in the state (table 3.2).

Four counties--Deer Lodge, Silver Bow, Cascade, and Lewis and Clark--accounted for most of the manufacturing activity in 1899. All were involved in smelting and refining--Deer Lodge, Silver Bow, and Lewis and Clark because of nearness to the ores, and Cascade County because large quantities of power and water were available from the Missouri River.

TABLE 3.2

Manufacturing in Montana in 1899

Industry Group	Number of Establishments	Total Employees[a]	Wages and Salaries ($000)	Value of Product ($000)	Value Added by Manufacture[b] ($000)
All industries	395	10,362	8,163	52,745	22,677
Cars and general shop construction and repairs by steam railroad companies	7	670	448	754	453
Food and kindred products	64	472	427	3,481	1,383
Foundry and machine shop products	10	575	552	1,198	769
Lumber and timber products	91	2,419	1,286	3,044	2,030
Printing and publishing	89	579	473	981	787
All other industries[c]	134	5,647	4,977	43,287	17,255
Copper, smelting and refining[d]	7	4,397	4,026	36,387	NA
Lead, smelting and refining[d]	3	590	472	5,264	NA
Other	124	660	479	1,636	NA

Sources: [All data except copper and lead] U.S. Department of Commerce and Labor, Bureau of the Census, Thirteenth Census of the United States Taken in the Year 1910: Manufactures, 1909, Reports by States, with Statistics for Principal Cities, vol. 9 (Washington, D.C.: U.S. Government Printing Office, 1912), table 1, p. 679.

[Copper and lead data] U.S. Department of the Interior, Census Office, Twelfth Census of the United States, Taken in the Year 1900: Manufactures, States and Territories, vol. 8, pt. 2 (Washington, D.C., 1902), table 5, p. 502.

[a]Includes salaried employees and wage earners, excludes proprietors and firm members.

[b]Value of products less the cost of materials, supplies, and containers, fuel, purchased electric energy and contract work.

[c]Includes several food products firms not included in the food and kindred products group listed above.

[d]These figures appeared in the Twelfth Census report for 1900 but not in the Thirteenth and may not be strictly comparable.

From the early 1900s until World War II, while the United States developed into a great and diversified industrial nation, few changes occurred in the makeup of Montana's manufacturing activity. In 1939, its major industries still were based upon the initial processing of raw materials. Some new activities had begun. In 1916, The Anaconda Company had added zinc production to its smelting facilities; the first oil refineries in the state were constructed in eastern Montana during the 1920s. Considerable processing of agricultural products had developed, so much so that the food and kindred products industry group had become the leading manufacturing employer by 1939; however, only beet sugar production and flour milling could be classified as export activities (table 3.3). A part of the food industry's prominence was a result of the Depression, which had had a devastating effect on lumber and primary metals. Western Montana's wood products industry, fairly well established in 1899, employed only a few more people in 1939, and continued to serve mostly local markets. Employment in the smelters was less than half what it had been in 1899. Thus, manufacturing remained much as described in the 1900 Census: chiefly "neighborhood industries" producing for local consumption and expanding with the population growth of the state.

Recent Developments

World War II, of course, brought a greater demand for Montana's manufactured products: lumber, metals, and food. The 1947 Census of Manufactures showed that the total number of production workers had increased 55 percent over 1939, while the total value added by manufacturing registered a 138 percent gain.[5]

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5. U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1947, Statistics by States, vol. 3 (Washington, D.C.: U.S. Government Printing Office, 1950), table 1, p. 359.

TABLE 3.3

Manufacturing in Montana in 1939

Industry Group	Number of Establishments	Total Employees[a]	Wages and Salaries ($000)	Value of Product ($000)	Value Added by Manufacture[b] ($000)
All industries	585	12,440	17,952	151,885	39,790
Food and kindred products	286	3,401	4,589	34,999	11,836
Bread and other bakery products	88	712	851	4,020	2,143
Flour and other grain mill products	24	342	488	6,255	1,726
Sugar, beet	5	844	1,138	10,780	3,391
Lumber and timber products	64	2,492	3,258	7,344	4,267
Sawmills, veneer mills, and cooperage-stock mills, including those combined with logging camps and with planing mills	53	2,152	2,803	6,430	3,611
Petroleum refining	28	875	1,546	13,461	4,377
Printing and publishing	104	1,197	1,912	4,042	3,053
Newspapers	80	972	1,586	3,196	2,555
All other industries[c]	103	4,475	6,646	92,038	16,258
Primary smelting and refining of nonferrous metals	6	2,110	NA	NA	NA

Source: U.S. Department of Commerce, Bureau of the Census, Sixteenth Census of the United States, 1940: Manufactures, 1939, Reports for States and Outlying Areas, vol. 3 (Washington, D.C., 1942), tables 8 and 10, pp. 582-583, 585.

Note: Totals may not add due to rounding. These data are not comparable with those in table 3.2; they exclude figures for "railroad repair shops" and "manufactured gas," which are included in the 1899 Census.

[a]Persons employed in manufacturing establishments excluding personnel of central-administrative offices and proprietors and firm members.

[b]Value of products less the cost of materials, supplies, and containers, fuel, purchased electric energy, and contract work.

[c]Includes figures for primary smelting and refining of nonferrous metals. Also includes data for candy and other confectionery products, sausages, prepared meats and other meat products--not made in meat packing establishments, and planing mills not operated in conjunction with sawmills.

Since 1947, manufacturing has not been among the most rapidly growing industry groups either in the United States or Montana. That description applies, rather, to the service industries, finance, and government. At the same time, many changes have occurred in manufacturing in both areas. The number of new products and the shifts in goods produced were far more striking at the national level. Nevertheless, noticeable changes also occurred in Montana's manufacturing industries. They included some diversification, considerable technological change, and greater employment stability. And, thanks to the wood products industry, manufacturing in Montana kept pace with national growth. Value added by manufacturing in 1967 was 247 percent higher than in 1947 in Montana and 249 percent higher in the United States;[6] between 1950 and 1969, total manufacturing employment grew about 33 percent in both the state and the nation (figure 3.1).

The following pages will provide brief descriptions of recent developments in manufacturing industries based on mineral, agricultural, and timber resources. As noted earlier, some of these industries are discussed in more detail elsewhere. Also included in the discussion are miscellaneous industries or plants which, while they are not now important employers or producers, serve to illustrate postwar patterns in Montana manufacturing, or seem to offer possibilities for future development, or, in some cases, simply seemed interesting to the writer.

Industries Based on Mineral Products. Nowhere has technological change in Montana been more evident since 1950 than in the primary metals industries. During the 1950s and 1960s, The Anaconda Company, which

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6. Table 3.4 and U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1969, 90th edition (Washington, D.C.: U.S. Government Printing Office, 1969), table 1103, p. 713.

TABLE 3.4

Manufacturing in Montana, 1947-1967

Year	Number of Establishments		Value Added, Adjusted[a] ($000)	Capital Expenditures, New ($000)
	Total	With Twenty Employees or More		
1947	650	NA	90,845	NA
1954	868	172	141,234	20,574
1955	NA	NA	207,701	65,079
1956	NA	NA	257,016	58,217
1957	NA	NA	202,479	19,998
1958	929	174	191,245	19,898
1959	NA	NA	217,985	16,048
1960	NA	NA	205,626	(17,717)
1961	NA	NA	212,621	18,170
1962	NA	NA	229,148	23,370
1963	976	188	236,230	38,587
1964	NA	NA	273,841	41,855
1965	NA	NA	284,809	31,737
1966	NA	NA	304,000	NA
1967	NA	NA	315,000	64,000

Sources: [1947-1963] U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1963, Area Statistics, Montana, MC63(3)-27 (Washington, D.C.: U.S. Government Printing Office, 1966), table 2, p. 27-4.

[1964-1965] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1964 and 1965 (Washington, D.C.: U.S. Government Printing Office, 1968), table 3, pp. 373 and 381.

[1966-1967] U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1967, Summary Series, General Statistics for Geographic Divisions and States, Preliminary Report MC67(P)-2 (Washington, D.C., 1969), table 2, p. 3.

Notes: Data for 1955 to 1957, 1959 to 1962, and 1964 to 1967 are estimates derived from a representative sample of manufacturing establishments canvassed in the annual survey of manufactures. Figures in parentheses may be of limited reliability since they either have associated errors exceeding 15 percent or are not consistent with related data.

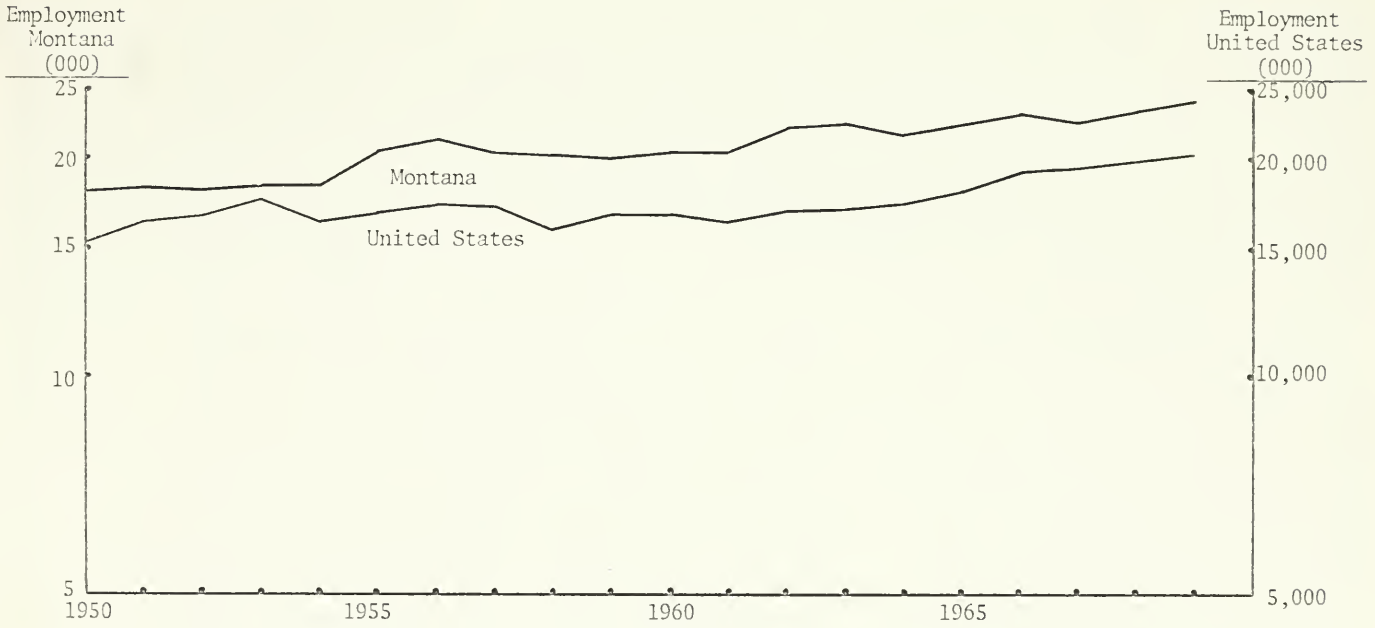
NA denotes that the data are not available.

From 1958 on, figures include data for Industry 3273, Ready Mixed Concrete, and Industry 3599, Miscellaneous Machinery. Data for these industries were excluded during the period 1947 to 1957. Beginning in 1954, data for Industry Group 202, Dairies, are included. Industry 2411, Logging Camps and Contractors, was excluded in 1947.

[a]Value added by manufacture is derived by subtracting the total cost of materials from the value of shipments and other receipts and adjusting the resulting amount by the net change in finished products and work-in progress inventories between the beginning and end of the year. Prior to 1956, value added figures were not adjusted for changes in inventories.

FIGURE 3.1

Manufacturing Employment, Montana and the United States, 1950-1969



Sources: [Montana, 1950-1969] Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana).

[United States, 1950-1968] U.S. Department of Labor, Bureau of Labor Statistics, Handbook of Labor Statistics: 1969, Bulletin 1630 (Washington, D.C.: U.S. Government Printing Office, 1969), table 36, p. 78.

[United States, 1969] U.S. Congress, Council of Economic Advisers, for the Joint Economic Committee, Economic Indicators, 91st Congress, 2nd Session (March 1970), p. 13.

Note: Data for the United States do not include Alaska and Hawaii prior to 1959. Wage and salary workers only.

produces most of the metals in the state, embarked on a large scale modernization program in an effort to keep the Montana operations competitive. Among the notable developments was the company's new ore concentrator constructed in Butte in 1962 and 1963, and enlarged in 1966.

In 1955, The Anaconda Company added a metal to those it produces in Montana. A subsidiary, the Anaconda Aluminum Company, began operation of an aluminum reduction plant at Columbia Falls, using low-cost power from Hungry Horse Dam. The plant was expanded in 1965 and again in 1968. Alumina, the basic raw material, at first came from Texas and Arkansas; in 1969, the Anaconda Aluminum Company began to supply all its own alumina requirements from Jamaica.

Modern new plants and technological improvements have kept the primary metals industries competitive partly through reducing labor requirements. As a result, employment in primary metals is no greater than it was in 1957. The jobs added by new plants have simply offset the loss of jobs as a result of the modernization of old facilities. It is important to add, however, that work in the primary metals industries is generally high paying and nonseasonal.

Hungry Horse Dam provided power for another industry new to the state in the early 1950s. The chemical industry came to Montana in the form of an elemental phosphorus plant located outside Butte, near the terminal of the Bonneville Power Administration transmission line from Hungry Horse, and operated by the Victor Chemical Works. (Recently, the Victor Company was acquired by Stauffer Chemical Company.) The plant originally used phosphate rock from deposits near Melrose; later it

shifted to phosphate rock from Idaho. Employment in the plant numbers about 200; the jobs are nonseasonal and generally high paying.[7]

Stauffer's operation, of course, is another example of a raw material-oriented industry. Another, smaller phosphate processing plant came into existence after the war. The Rocky Mountain Phosphate plant, well-known because of its air pollution problems, produces defluorinated phosphate for use in agricultural fertilizers. It first operated in Butte and then at Garrison. Its employment is very small, around 20 employees. The Anaconda Company's phosphate fertilizer plant at Anaconda, on the other hand, was closed down in 1960.[8]

Both the Anaconda Aluminum plant and the Stauffer elemental phosphorus facility came to Montana primarily because of low power costs; in the case of the aluminum plant, power helps offset disadvantages of distance from raw materials and markets. The establishment of these two plants created a great interest in Montana in hydroelectric power as a vehicle for industrial development. Perhaps because no additional power-oriented industries have been attracted to the state, this hope is not so prevalent as it once was. Interestingly, the construction of the huge new Libby Dam in Lincoln County has caused very little public speculation as to possible new industry.

Also related to mineral resources in Montana is the cement industry. Cement has been produced at Trident near Three Forks since 1910; the plant there has been operated by the Ideal Cement Company since 1917. In 1963, Kaiser Cement and Gypsum Corporation opened a cement plant near a limestone

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7. Reply to telephone inquiry to Personnel Director, Stauffer Chemical Company, Butte, Montana, April 1970.

8. All of the plants mentioned in this paragraph are classified in the chemicals and allied products group in the tables.

deposit at Montana City, outside of Helena. The firm had contracted to supply cement for the construction of Yellowtail Dam in southeastern Montana. In 1964, expansion plans to increase storage capacity and to make available a greater variety of cement types were announced. An official of the firm was quoted as saying that the complexity and highly seasonal nature of the area's construction industry made these changes necessary.[9] In 1968, the cement industry employed 221 persons, with annual earnings at a rate well above those for all manufacturing employees (table 3.5).[10]

Like the primary metals, Montana's petroleum refining industry has engaged in considerable modernization over the past 20 years. The familiar result: fewer refineries, little change in employment, but a substantial increase in output of refined petroleum products. Wages paid by the refining industry are among the highest in the state.

Industries Based on Agricultural Products. The food products industry (discussed in greater detail later in this chapter) is engaged in processing Montana's agricultural products or in producing other food products, mostly for local consumption. Since World War II, employment in meat packing and dairy products has increased while the number of workers in the canning, sugar, and beverage industries has been reduced. The net result has been little change in number of workers.

Earnings in the food products industry are generally low in comparison with those in other manufacturing industries. Food products employees

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9. Montana State Planning Board, Industrial Horizons, vol. 9, no. 5 (1964), p. 3.

10. Cement plants are part of the stone, clay, glass, and concrete products group in the tables.

TABLE 3.5

Employment and Earnings in Montana's Manufacturing Industries
1968

Industry	Average Monthly Employment	Average Earnings (Annual Rate)
All manufacturing industries	23,197	$6,766
Paper and allied products	441	9,546
Petroleum refining and related industries	1,176	8,880
Ordnance and accessories[a]	446	8,861
Chemicals and allied products	363	7,294
Industrial chemicals	278	7,735
Primary metal industries[b]	3,713	7,136
Lumber and wood products	8,945	6,708
Stone, clay, glass, and concrete products	983	6,597
Cement	221	7,634
Food and kindred products	4,284	6,075
Printing, publishing, and allied industries	1,767	5,863
Other manufacturing industries	1,079	5,861

Source: Employment Security Commission of Montana, unpublished data (Helena, Montana).

Notes: "Other manufacturing industries" includes: textile mill products, apparel and related products, furniture and fixtures, rubber and miscellaneous plastics products, fabricated metal products, machinery except electric, and miscellaneous manufacturing.

Wage and salary workers only.

[a]Missile assembly workers.

[b]Metal mining employees were on strike January through March 1968.

working all year in 1968 earned an average of $6,075; the average annual rate for all manufacturing workers was $6,766 (table 3.5). Only meat products employees earn at a rate higher than the typical manufacturing employee in the state. And only the meat packing industry appears to offer much hope for increased employment at the present time.

Industries Based on Timber Resources. The wood products industry, on the other hand, is where the action has been since World War II. There have been setbacks and slowdowns, but in general, the industries based on Montana timber resources have modernized, expanded, and diversified to a significant extent. Plywood, pulp, paper, and numerous remanufactured lumber products have been added to the industry's output. In 1968, wood products provided 37 percent of the manufacturing jobs in the state (table 3.6). Jobs in some of the smaller operations and in logging still are seasonal; the larger mills generally operate year round. Wages, while not high, are near the average for all manufacturing employees in Montana.

The explanation for the growth of wood products in Montana, when the industry was not expanding nationally, is very simple. At the end of World War II, Montana had great unutilized timber resources; in other parts of the country, supplies were declining. Improved technology and higher prices made it possible to utilize Montana timber.

A more complete discussion of the wood products industry appears later in this chapter.

Other Manufacturing Industries. One other industry, new to Montana since 1960, presumably temporary, but showing signs of long-term residency, should be mentioned: ordnance and accessories or, more specifically, missile assembly. In 1961, the federal government began construction of a

TABLE 3.6

Employment in Manufacturing, Montana, 1950-1969

Year	Manufacturing, Total: Number	Manufacturing, Total: Percentage of Total Nonagricultural Employment	Ordnance and Accessories	Food and Kindred Products[a]	Lumber and Wood Products	Paper and Allied Products	Printing, Publishing and Allied Products	Chemicals and Allied Products	Petroleum Refining	Stone, Clay Glass, and Concrete Products	Primary Metals Industries	All Other Manufacturing
1950	18,000	12.1	0	4,200	5,400	0	1,500	700	1,000	600	4,000	600
1951	18,100	12.0	0	4,200	6,100	0	1,500	600	1,000	600	3,600	500
1952	18,000	11.6	0	4,100	5,900	0	1,500	900	1,100	500	3,600	400
1953	18,300	11.7	0	4,000	5,800	---[b]	1,500	1,000	1,200	600	3,600	600
1954	18,300	11.6	0	3,900	6,200	---[b]	1,600	900	1,200	500	3,300	700
1955	20,400	12.6	0	3,900	7,100	---[b]	1,600	1,000	1,200	600	4,300	700
1956	21,200	12.6	0	3,900	7,600	---[b]	1,600	900	1,200	600	4,600	800
1957	20,400	12.4	0	3,900	6,600	---[b]	1,600	1,000	1,200	600	4,800	700
1958	20,200	12.4	0	4,300	6,600	100	1,700	900	1,000	700	4,200	700
1959	19,900	12.1	0	4,300	7,500	100	1,700	700	900	800	3,100	800
1960	20,400	12.2	0	4,200	7,200	200	1,700	600	900	800	3,800	1,000
1961	20,400	12.2	100	4,300	7,400	200	1,700	500	1,000	800	3,600	800
1962	22,000	12.8	600	4,400	8,000	200	1,600	400	1,000	800	3,500	1,500
1963	22,400	12.8	800	4,400	8,500	200	1,600	400	1,200	900	3,200	1,200
1964	21,500	12.2	---[b]	4,500	8,400	300	1,600	400	1,200	900	3,300	900
1965	22,200	12.2	100	4,300	8,600	300	1,700	500	1,100	1,000	3,600	1,000
1966	23,000	12.3	200	4,300	8,900	300	1,800	500	1,000	1,000	3,900	1,100
1967	22,400	11.8	400	4,400	8,600	400	1,700	400	1,000	1,000	3,200	1,300
1968	23,300	12.0	400	4,300	8,900	400	1,800	400	1,000	1,000	3,700	1,400
1969[c]	24,000	12.2	500	4,300	8,900	500	1,800	400	1,000	900	4,700	1,000

Source: Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana), and unpublished data.

Note: Includes wage and salary workers only.

[a]Data for years prior to 1958 are not strictly comparable with those for later years because of changes in the 1957 Standard Industrial Classification.

[b]Less than 50.

[c]Preliminary.

Minuteman missile complex in north central Montana. The complex consisted of 150 underground silos and 15 launch control centers. At the peak of activity, in September 1962, 4,600 men were employed on the project.[11] Most of these workers were classified as construction employees, but those engaged in missile assembly work for the Boeing Company were called manufacturing workers. In 1963, an average of 800 such persons was employed per month. Later, beginning in 1965, another 50 launch sites were constructed; this work required an average of over 400 assembly workers in 1967 and 1968 (table 3.6). The annual earnings for these workers are unusually high for Montana manufacturing employees (table 3.5).

In 1969, the decision was made to construct Safeguard antiballistic missile sites in Pondera and Toole Counties. Work is expected to begin in mid-1970 and extend through 1974. Peak employment (in 1972) is expected to reach 3,000; some of these workers will be classified as manufacturing and some as construction workers. When the missile complex is completed, in 1974 or 1975, about 1,500 workers will be employed; 900 military and 600 civilian. These people will reside in the Conrad and Shelby areas north of Great Falls.[12]

Some of the consequences of these projects on the north central Montana communities located near the missile sites and on statewide employment are discussed in Chapter 4 on construction.

Newspaper plants and printing firms may not look like manufacturing activities, but printing and publishing is classified as a part of the

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11. "Minuteman Complex Fully Operational," Great Falls (Montana) Tribune, July 4, 1963, p. 1.

12. U.S. Department of Defense, Briefing Text for Presentation to Governor Forrest H. Anderson (Helena, Montana, November 24, 1969).

manufacturing group. In recent years, some 1,800 persons have been employed in the industry in Montana (table 3.6). The wages are low--printing and publishing ranks near the bottom among all manufacturing industries in annual earnings per year-round worker (table 3.5). It is an industry supplying primarily local markets and its future will be dependent upon population growth in the state.

Among the interesting new manufacturing industries in the state are two small carpet mills, a plastic products plant, and a rifle repair factory. All of these plants have something in common: they are located on Indian reservations. The carpet mills are on the Crow reservation near Hardin; the plastic plant (producing mostly jewelry) is on the Northern Cheyenne reservation near Ashland; it employed an average of 150 persons in 1968.[13] The rifle plant employs over 100 workers who repair small arms for the military; it hopes to add other nondefense products to its operations.[14] All of these enterprises are subsidized by the federal government or by the tribes involved. The hope is that eventually they can be operated profitably without direct subsidies.

A small manufacturing plant in Missoula operates as a subcontractor for an outer clothing manufacturer on the coast, providing jobs for approximately 30 women. Two other successful small plants operate in Missoula: a dental equipment manufacturer and a typewriter desk producer. At Kalispell, a firm produces trailers and campers. Similar examples exist in other

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13. Response to inquiry to Mr. E. M. Peterson, Area Reservation Programs Officer, Bureau of Indian Affairs, Billings, Montana, April 1970.

14. John Kuglin, "Technology, Not Tomahawks on Reservations," Great Falls (Montana) Tribune, February 15, 1970, p. 6a.

Montana cities. For the most part, the enterprises cited above represent the ingenuity of a particular individual and/or a "footloose" industry--that is, an industry not tied to resources or markets, which can operate successfully almost anywhere. Taken together, these firms described above do not provide a great many jobs; they do suggest that opportunities for more such enterprises may exist.

Food and Kindred Products

The food products industry in Montana is a hodgepodge of small plants engaged in processing Montana agricultural products or in producing other consumer-oriented food products, mostly for local consumption. Its major divisions include meat packing plants, dairies, flour mills, sugar plants, bakeries, and soft drink bottling firms. It employs almost one-fifth of all manufacturing workers in the state (table 3.6). It is an industry group which has grown with the population of Montana and where, in recent years, nothing much seems to have happened to change its collective appearance. Small local breweries disappear, a sugar plant closes its doors, but other activities expand enough to take up the slack. As a result, the number of workers has changed little over the past 20 years (table 3.7). With the exception of meat products employees, industry personnel generally earn rather low wages, even if they are employed year round (tables 3.5 and 3.8). Average hourly wage rates are below the average for all manufacturing industries in the state. Employment in the industry also is very seasonal; in both 1968 and 1969, there were 1,000 more workers

TABLE 3.7

Employment in the Food Products Industry, Montana
1950-1969

Year	Food Products, Total		Meat Products	Dairy Products	Canned and Preserved Fruits, Vegetables, and Seafoods	Grain Mill Products	Bakery Products	Sugar	Beverages	All Other
	Number	Percentage of Total Nonagricultural Employment								
1950	4,275	2.9	619	703	113	827	734	725	459	95
1951	4,149	2.7	677	561	103	808	706	705	477	112
1952	4,067	2.6	674	517	114	827	691	645	492	107
1953	4,000	2.6	728	518	115	758	697	584	489	111
1954	3,931	2.5	721	486	79	753	699	596	507	90
1955	3,871	2.4	709	473	82	702	694	606	516	89
1956	3,864	2.3	668	481	100	663	691	657	527	77
1957	3,872	2.3	625	558	91	660	701	636	525	76
1958	4,253	2.6	596	683	254	678	791	655	506	90
1959	4,258	2.6	608	730	234	675	810	592	493	116
1960	4,261	2.6	678	760	225	644	753	576	498	127
1961	4,274	2.6	665	753	210	671	702	663	494	116
1962	4,352	2.5	641	758	219	656	735	715	486	142
1963	4,400	2.5	701	794	217	565	754	712	497	160
1964	4,467	2.5	809	801	86	568	740	807	471	185
1965	4,316	2.4	928	777	79	503	702	708	442	177
1966	4,319	2.3	926	853	70	597	682	559	464	168
1967	4,401	2.3	904	864	75	719	655	613	442	129
1968	4,284	2.2	760	859	44	791	662	647	413	108
1969	4,316	2.2	756	774	54	894	654	729	345	110

Source: Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana), and unpublished data.

Notes: Wage and salary workers only.

Data for years prior to 1958 are not strictly comparable with data for later years because of changes in the 1957 Standard Industrial Classification.

TABLE 3.8

Employment and Earnings in Montana's
Food Products Industry, 1968

Industry	Average Monthly Employment	Average Earnings (Annual Rate)
All food and kindred products	4,284	$6,075
Meat products	760	7,230
Grain mill products	791	6,062
Beverage industries	413	5,923
Sugar	647	5,877
Dairy products	859	5,778
Bakery products	662	5,776
Miscellaneous food and kindred products	108	4,948
Canned and preserved fruits, vegetables, and seafoods	44	3,758

Source: Employment Security Commission of Montana, unpublished data (Helena, Montana).

Note: Wage and salary workers only.

employed in October than in March and April--and average employment for these years was only 4,300.[15]

Table 3.9 makes some interesting comparisons between Montana's food products industry and that of the United States. Value added per worker is lower and value added per dollar of wages is substantially lower in Montana. Part of the discrepancy obviously is a result of the higher hourly wages paid in Montana. However, differences in industry mix and in plant efficiency no doubt also play a role. Table 3.9's message seems to be that new production methods and more mechanization (even if that means fewer workers) will be necessary if Montana's industry is to remain competitive and if present wage rates are to be maintained.

Although a growing population has created an increased demand for food products nationally, the food industry has grown more slowly than most manufacturing industries. When greater affluence permits Americans to spend a larger proportion of their incomes on other goods and on services, the proportion of income spent on food declines. And, like other industries, the food industries are becoming more mechanized; output per worker is increasing substantially. As a result, employment in the United States industry was smaller in 1968 than in 1950, and very little increase is expected in the next few years. The National Planning Association predicts an annual growth in full-time jobs of 0.5 between 1968 and 1980.[16]

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15. Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana).

16. Ahmad Al-Samarrie, Economic Projections to 1980: Growth Patterns for the Coming Decade, National Planning Association, Center for Economic Projections, National Economic Projections Series, Report 70-N-1 (Washington, D.C.: National Planning Association, 1970), table VI-10, p. S-74.

TABLE 3.9

Value Added in the Food Products Industry: Some Comparisons
Montana and the United States, 1958 and 1963-1966

Year	Value Added Per Production Worker		Montana as Percentage of United States	Value Added Per Dollar of Wages		Montana as Percentage of United States	Wages Per Production Worker Man-Hour		Montana as Percentage of United States
	United States	Montana		United States	Montana		United States	Montana	
1958	$15,340	$13,896	90.6	$3.89	$3.46	88.9	$1.97	$1.94	98.5
1963	19,875	17,681	89.0	4.23	3.62	85.6	2.32	2.35	101.3
1964	21,046	18,737	89.0	4.30	3.60	83.7	2.36	2.43	103.0
1965	21,492	21,312	99.2	4.32	3.70	85.6	2.44	2.64	108.2
1966	22,675	22,076	97.4	4.39	3.77	85.9	2.53	2.82	111.5

Sources: [Montana, except percentages, 1958] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, U.S. Census of Manufactures: 1958, Montana, Area Report MC58(3)-25 (Washington, D.C.: U.S. Government Printing Office, 1960), table 4, p. 25-6.

[Montana, except percentages, 1963] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1963, Area Statistics, MC63(3)-27 (Washington, D.C.: U.S. Government Printing Office, 1966), table 5, p. 27-7.

[Montana, except percentages, 1964; United States, 1963-1964] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1964 and 1965 (Washington, D.C.: U.S. Government Printing Office, 1968), tables 2 and 3, pp. 14, 15, 373, and 381.

[Montana, except percentages, and United States, 1965-1966] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1966 (Washington, D.C.: U.S. Government Printing Office, 1969), tables 2 and 3, pp. 12, 373, and 381.

[United States, 1958] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1959 and 1960 (Washington, D.C.: U.S. Government Printing Office, 1962), table 2, p. 15.

In Montana, food products is an industry group which has seemed to offer some opportunity for significant growth. The rationale has been that since Montana produces large quantities of agricultural commodities, there should be some way of processing more of them here. Prospects for the industry's expansion will be discussed in the following pages.

An Industry-by-Industry View

Meat Products. Simple "butcher shops," which slaughtered and sold fresh meat at retail, date back to gold rush days. Such men as Granville Stuart and Conrad Kohrs operated shops in the early mining camps.

With the increase in population and in livestock numbers, a few larger packing plants began to appear. The Census of Manufactures taken in 1899 reported that 3 wholesale packing plants with 40 employees produced $852,000 worth of meats in that year.[17] Excluded in the census count were the many retail, butcher shop operations mentioned above.

In 1922, the first full year of licensing by the Montana Livestock Sanitary Board, 133 slaughterhouses were issued licenses. By 1926, the number had risen to 278--again, most of them operating in conjunction with retail outlets and serving the many small communities which had sprung up in preceding years.[18] Even so, much of the meat consumed in

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17. U.S. Department of Commerce and Labor, Bureau of the Census, Thirteenth Census of the United States Taken in the Year 1910: Manufactures, 1909, Reports by States, with Statistics by Principal Cities, vol. 9 (Washington, D.C.: U.S. Government Printing Office, 1912), table 1, p. 679.

18. Montana Livestock Sanitary Board, Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, For Years 1921-1922, vol. 1, no. 5 (Helena, Montana, 1922), p. 12; and Montana Livestock Sanitary Board, Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, For years 1923-1924, vol. 1, no. 7 (Helena, Montana, 1924), p. 14.

Montana came from plants outside the state, since the meat packing industry in the United States remained highly centralized. The Montana Livestock Sanitary Board complained, in its biennial report for the period ending November 30, 1928, that

> It is an economic waste for us to ship our products, and especially our living animals, some fifteen hundred miles to market centers, and then have the carcasses of these selfsame animals shipped back to us for consumption.[19]

but the complaint did not seem to alter the situation.

The 1939 Census reported that in Montana 13 wholesale meat packing plants employed 394 persons and produced $4.7 million in meat products.[20] Small operations were fewer now, with the Montana Livestock Sanitary Board reporting a total of 42 licensed slaughterhouses that year.[21] Meat produced in Montana still was sold almost exclusively for local consumption; because of lack of inspection, plants could not ship their products across state lines.

A national Meat Inspection Act covering products moving in interstate commerce had been passed in 1906. However, no Montana plant sought federal inspection until World War II. The Montana Livestock Sanitary Board, in its 1938 report, noted that 'Montana has a splendid meat inspection

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19. Montana Livestock Sanitary Board, Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, For the Biennium December 1, 1926 to November 30, 1928 (Helena, Montana, 1928), p. 7.

20. U.S. Department of Commerce, Bureau of the Census, Sixteenth Census of the United States: 1940, Manufactures, 1939, Reports for States and Outlying Areas, vol. 3 (Washington, D.C.: U.S. Government Printing Office, 1942), table 8, pp. 582-583.

21. Montana Livestock Sanitary Board, Report of the Montana Livestock Sanitary Board, December 1, 1938 to November 30, 1939 (Helena, Montana, 1939), p. 12.

law," passed by the state legislature in 1931, but that the legislature had not yet appropriated money to implement it.[22] There were, by the mid-thirties, three major plants in the state which were being inspected by the state regularly at their own cost; other plants supplying meat to Civilian Conservation Corps (CCC) camps and other federal operations within the state were required to have that meat inspected.[23]

During World War II, demand for meat increased and the national trend already underway toward decentralization of the packing industry was accelerated. More cattle were fed in Montana, and more packing activity took place. Because much of the demand for meat came from the military, several Montana plants took action to qualify themselves for federal inspection and shipment across state lines. By war's end, there were four federally-inspected plants and eight state-inspected producers. The Census of Manufactures in 1947 reported that 677 workers were employed in meat products plants--an increase of 72 percent over the 1939 figure.[24]

The industry continued to grow after 1947. Plants were modernized and expanded; new firms entered the industry. Employment increased and the number of cattle processed more than tripled, while the number of

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22. Montana Livestock Sanitary Board, Report of the Montana Livestock Sanitary Board, December 1, 1936 to November 30, 1938 (Helena, Montana, 1938), p. 20.

23. Montana Livestock Sanitary Board, Report of the Montana Livestock Sanitary Board, December 1, 1934 to November 30, 1936 (Helena, Montana, 1936), p. 17.

24. U.S. Department of Commerce, Census of Manufactures: 1947, Statistics by States, vol. 3, table 4, p. 361; and U.S. Department of Commerce, Sixteenth Census of the United States: 1940, Manufactures, 1939, Reports for States and Outlying Areas, vol. 3, table 8, p. 582.

hogs almost doubled between 1950 and 1969.[25] Estimates of total dressed weight of meat produced, a more accurate measure of changes in production, for the years since 1958 are shown in figure 3.2.

Most of the cattle slaughtered in Montana are fed here; some packing houses operate their own feedlots to insure a supply of fat cattle. Meat producers are unable to procure enough hogs locally and import a substantial number from out-of-state.[26]

Of course, beef is the major meat product in Montana; it makes up about three-fourths of total production. During the early 1960s, the statement was frequently made that production and consumption of beef in the state was approximately equal, and this appears to have been correct. Beginning in 1964, however, beef processed in the state substantially exceeded probable consumption. In 1967, Montana packing houses produced approximately 193 pounds of beef per resident,[27] while national per capita

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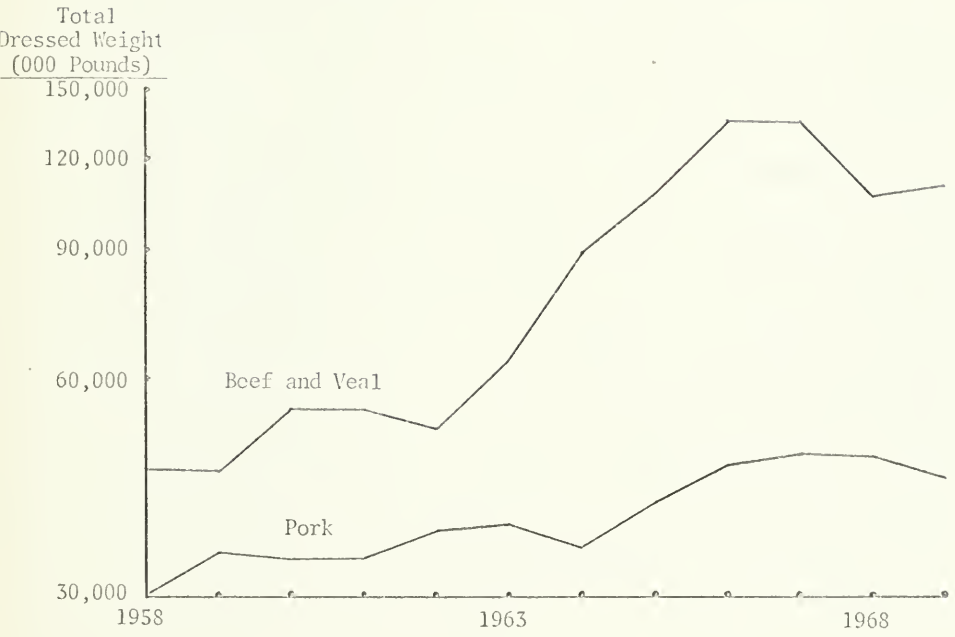
25. U.S. Department of Agriculture, Bureau of Agricultural Economics, Montana Federal Agricultural Statistical Service, Montana Livestock Slaughter, July 1951 (Helena, Montana, September 10, 1951); and U.S. Department of Agriculture, Statistical Reporting Service, and Montana Department of Agriculture, Agricultural Statistics, Montana Crop and Livestock Reporting Service, Commercial Livestock Slaughter and Meat Production, 1969 (Helena, Montana, February 2, 1970).

26. Charles H. Rust and Clive R. Harston, The Survival and Growth Potential of Small Meatpacking Businesses in Montana, Montana Agricultural Experiment Station, Small Business Management Research Report, Bulletin 580, for the Montana State Planning Board (Bozeman, Montana: Montana State College [now Montana State University], 1963), p. 30.

27. U.S. Department of Agriculture and Montana Department of Agriculture, Commercial Livestock Slaughter and Meat Production, 1968 (Helena, Montana, February 3, 1969); and U.S. Department of Commerce, Bureau of the Census, "Estimates of the Population of States: July 1, 1967," Current Population Reports: Population Estimates, Series P-25, no. 414 (January 28, 1969), table 1, p. 10.

FIGURE 3.2

Meat Production in Montana, 1958-1969



Source: U.S. Department of Agriculture, Statistical Reporting Service, and Montana Department of Agriculture, Agricultural Statistics, Montana Crop and Livestock Reporting Service, Commercial Livestock Slaughter and Meat Production, 1959-1969 (Helena, Montana).

Note: Data not available for years prior to 1958.

consumption was estimated at 106 pounds.[28] Obviously, Montana producers were going out of state for markets. Then, in 1968, the growth in meat packing suddenly stopped. Two of the larger plants ceased operation; beef production declined; and employment fell off (figure 3.2 and table 3.7). One of the packing plants which closed in 1968 previously had supplied meat to Glasgow Air Force Base, which ceased operation that year. The other plant had a history of changing ownership and operational difficulties. By late 1969, neither had reopened.

Since, even with these closures, Montana produced more beef than its residents consumed in 1968, the possibility for future expansion depends upon the ability of Montana meat producers to compete in out-of-state markets. Certainly, the demand for beef will continue to increase as the United States population grows. In 1980, total beef consumption in the United States probably will be approximately 35 percent higher than in 1968, according to U.S. Department of Agriculture projections.[29]

An expanding meat packing industry would require changes in Montana's cattle feeding operations. A steady year-round supply of fat cattle is necessary; present feedlots would have to be modernized and expanded in size to operate profitably and competitively. (See Chapter 1 on agriculture.)

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28. U.S. Department of Commerce, Statistical Abstract of the United States: 1969, table 116, p. 82.

29. Rex F. Daly, Director, Economics and Statistical Analysis Division, Economic Research Service, U.S. Department of Agriculture, in "Exploring the Future of the Agribusiness Industry," a speech before the Tennessee Farmers Cooperative, 25th Annual Meeting, Nashville, Tennessee, December 5, 1969, p. 9.

Changes in packing plant operations might also be necessary. Most plants lack the volume to supply out-of-state markets of any size on a regular basis; they would have to be enlarged. Some of their facilities are outdated.

Most Montana producers lack experience in anything but local marketing, and the competition from national packers and brand names is strong in the large markets. One possible solution appears to be the shipment of carcasses to breaking plants nearer the population centers. A plant in Billings currently is processing cows and shipping carcasses to California where they are cut for the lower-priced meat market. Whatever the type and quality of beef, supplying carcasses could eliminate some of the marketing problems associated with out-of-state selling and still result in more local processing of Montana beef.

In any event, when expansion of the meat packing industry is viewed from the perspective of new jobs, the prospects are not as exciting as one might think. At best, we seem to be talking about only a few hundred jobs. Between 1960 and 1967, when total meat production doubled, from 90 million to 183 million pounds, employment in Montana increased by 226 (table 3.7).[30] Meat products jobs are fairly good-paying jobs; average annual earnings for year-round workers were higher than in any other food products industry in 1968--$7,230 as opposed to an industry average of $6,075 (table 3.8).

Dairy Products. The first milk processing in Montana was done on the farms where the milk was produced. In the early days, farm dairy units existed wherever population centers grew up.

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30. U.S. Department of Agriculture and Montana Department of Agriculture, Commercial Livestock Slaughter and Meat Production, 1960 and 1968.

After 1900, as population grew more rapidly and many new towns were established, the interest in commercial creameries grew, and was sometimes overdone. There were reports of creameries, established in areas where no milk supply existed, which never took in a can of cream.[31] Nevertheless, successful commercial creameries were established, especially between 1910 and 1930, producing cheese, butter, and ice cream as well as milk. In 1921, the Montana Livestock Sanitary Board laboratory was charged with the enforcement of dairy products sanitation regulations. The establishment of such regulations no doubt hastened the demise of many on-farm creamery operations.

In 1939, the Census of Manufactures reported 6 cheese plants, 71 butter producers, and 22 ice cream plants in Montana, employing a total of 513 persons.[32] Plants producing fluid milk were not classified as manufacturers until 1954.

A number of changes have occurred in the dairy products industry since World War II. Nationally, and in Montana, the trend has been toward consolidation of ownership and production. The number of producers in the state has declined, and national or regional organizations have taken over several local firms. The quality of dairy products has improved, but the production has declined, often dramatically. The number of milk cows in the state fell from approximately 114,000 in 1950 to 49,000 in 1967; a 57 percent decline. An increase in production per cow resulted

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31. Merrill G. Burlingame and K. Ross Toole, A History of Montana, vol. 1 (New York: Lewis Historical Publishing Company, Inc., 1957), pp. 390-391.

32. U.S. Department of Commerce, Sixteenth Census of the United States: 1940, Manufactures, 1939, Reports for States and Outlying Areas, vol. 3, table 8, p. 582.

in a smaller (though still very large) drop in total milk production--37 percent between 1950 and 1967.[33]

Nationally, per capita consumption of most dairy products is declining through changes in eating habits and because of competition from nondairy products. Individual products have fared quite differently. In Montana, for example, butter production fell from 8.1 million pounds in 1950 to 3.0 million in 1968 (62 percent). Fluid milk production dropped 36 percent over the 19-year period. The production of cottage cheese, on the other hand, was 3 1/2 times greater in 1968.[34]

Although overall production has declined, total employment in the dairy products industry has increased. In 1968, dairy products plants were the largest employers in the food group (table 3.8). Figures from the Census of Manufactures, although not comparable with those in table 3.8, indicate that increased emphasis on collection and distribution may be the explanation. The number of production workers has declined. This also may help to explain the relatively low rate of annual earnings of dairy products employees--approximately $300 less than the average in the food products group, and $1,000 below the average for all manufacturing. (tables 3.5 and 3.8).

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33. Montana Department of Agriculture and U.S. Department of Agriculture, Agricultural Marketing Service, Montana Agricultural Statistics, vol. 6 (Helena, Montana, 1956), p. 29; and Montana Department of Agriculture and U.S. Department of Agriculture, Statistical Reporting Service, Montana Agricultural Statistics, vol. 12 (Helena, Montana, 1968), p. 67.

34. Ibid., vol. 6, pp. 29 and 30; U.S. Department of Agriculture, Statistical Reporting Service, and Montana Department of Agriculture, Agricultural Statistics, Montana Crop and Livestock Reporting Service, Dairy and Poultry Report (Helena, Montana, May 27, 1970); and U.S. Department of Agriculture, Statistical Reporting Service, and Montana Department of Agriculture, Agricultural Statistics, Montana Annual Milk and Poultry Production, Disposition, and Income, 1969 (Helena, Montana, April 29, 1970).

The chances for further increases in employment in the dairy products industry seem small. Instead, it seems likely that the consolidation of dairy products firms probably will continue and that fewer workers will be needed to provide dairy products for Montana's slow-growing population.

Fruit and Vegetable Canning. Fruit and vegetable canning once was an important seasonal activity in several Montana localities. In recent years it has declined to the point where monthly average employment, in 2 widely separated plants, is less than 50 people.[35]

The industry dates back to World War I, when canneries operated in the Bitterroot and Gallatin Valleys, selling most of their production to the government. In the 1920s, vegetable canning plants were established in Red Lodge and Billings, near irrigated farms producing peas and beans.

All of these plants faced the same problems: single crops, short season operation, remoteness from markets, and weather uncertainties. Furthermore, after World War II, when frozen fruits and vegetables became more popular, demand for canned products began to decline.

In 1969, a sour cherry cannery at Hamilton and a vegetable (bean) cannery at Red Lodge still were in operation. Yearly average employment for the industry was reported as 44 in 1968. This means that the actual number employed during the brief canning season must have been considerably larger. These workers (mostly women) were employed at an average annual rate of less than $3,800 (table 3.8).

Grain Mill Products. Wheat is a major agricultural product in Montana, but most of it is exported from the state to the large milling centers or

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35. Employment Security Commission of Montana, unpublished data (Helena, Montana).

to overseas destinations. Some is processed in Montana flour mills--enough to make flour production one of the major food products industries. The other grain mill products involved are prepared animal feeds for the state's livestock industry.

Flour milling was among the early manufacturing activities in Montana. Everybody needed flour, and the prices charged in Montana for flour freighted in from other areas frequently was exhorbitant. As a result, small mills sprang up near population centers where grain was also produced. Missoula and Bozeman became early milling centers. Later, with the completion of the railroads and the development of the adjacent wheat area (and assisted by the presence of abundant water power), Great Falls became the leading flour producing center.

Like many other industries, the milling industry has moved toward more centralization in recent years. There are fewer small flour mills and fewer feed mills scattered around the state. Nevertheless, employment, at almost 800 in 1968, has increased in recent years. The earnings of year-round workers were at the average for all food industry employees (table 3.8).

Little future growth in grain mill products seems likely. Demand for flour products will depend mostly upon population growth; per capita consumption of wheat flour is declining. Some increased demand for prepared animal feeds could come from increased feeding in the state.

Bakery Products. Like meat products plants, bakeries grew up throughout the state to serve the local people. The 1899 Census reported 27 bakeries; the 1939 Census, 88. Many of these small-town bakeries went out of business when labor and supplies became scarce during World War II;

by 1947, their number had been cut in half, to 44. In 1963, only 28 remained.[36]

Competition from the in-house bakeries of chain groceries (classified as part of the grocery operation) and from large out-of-state bakeries as well as labor-saving production methods may further reduce employment in the industry, which has declined in recent years and averaged only 662 workers in 1968 (table 3.8).

Beet Sugar. Sugar beets raised in Montana's irrigated valleys provided the raw materials for what was once the state's leading food products industry. In 1939 and again in 1947, the Census of Manufactures reported five beet sugar factories in the state. In both years, these plants accounted for approximately one-third of total value added by the food industries. Average annual employment figures were reported at over 800 in 1939, and over 900 in 1947.[37] The plants were located at Billings, Chinook, Hardin, Missoula, and Sidney.

In 1968, only three plants remained; those at Chinook and Missoula had been closed. Average annual employment in 1968 was at 647 (table 3.8). Again, because the season is short, the total number of people involved would have been much larger.

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36. U.S. Department of the Interior, Twelfth Census of the United States, Taken in the Year 1900: Manufactures, States and Territories, vol. 8, pt. 2, table 5, p. 502; U.S. Department of Commerce, Sixteenth Census of the United States: 1940, Manufactures, 1939, Reports for States and Outlying Areas, vol. 3, table 8, p. 582; U.S. Department of Commerce, Census of Manufactures: 1947, Statistics by States, vol. 3, table 4, p. 361; and U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1963, Area Statistics, Montana, MC63(3)-27 (Washington, D.C.: U.S. Government Printing Office, 1966), table 5, p. 27-7.

37. U.S. Department of Commerce, Sixteenth Census of the United States: 1940, Manufactures, 1939, Reports for States and Outlying Areas, vol. 3, table 8, p. 583; and U.S. Department of Commerce, Census of Manufactures: 1947, Statistics by States, vol. 3, table 4, p. 361.

The future of the Montana sugar industry depends upon the continuation of federal sugar policy of high duties on imported sugar and payments to domestic producers. These programs apparently are widely accepted and are not likely to be discontinued, so sugar beet production in Montana has increased in recent years and could increase a little more. The effect probably would be to lengthen the period of employment at sugar beet factories rather than to create new jobs.

Beverages. Nowadays, beverage production in Montana means soft drink production. The breweries which used to operate in the state have all fallen victim to the beer industry's move toward centralization. There were eight breweries in Montana in 1947.[38] There are none today. The soft drink bottling plants scattered around the state employed just over 400 people in 1968, at an average annual wage of $5,923 (table 3.8).

The Outlook

With the possible exception of meat packing, the chances for expansion in Montana's food products industry seem very small. Nationally, employment in the industry to 1980 is expected to increase very little over the 1968 level.[39] For the most part, expansion in Montana will depend upon the growth of local markets. The Montana Economic Study estimates that an average of 4,600 workers will be employed by the food products industries

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38. U.S. Department of Commerce, Census of Manufactures: 1947, Statistics by States, vol. 3, table 4, p. 361.

39. Al-Samarrie, Economic Projections to 1980: Growth Patterns for the Coming Decade, table VI-10, p. S-74.

in 1980--300 more than in 1968 and 1969. A good many of the new jobs probably will be in meat packing.[40]

The Wood Products Industries: Lumber and Wood Products, Paper and Allied Products

Loggers, lumbermen, and foresters are not by nature fainthearted, and the history of Montana's wood products industry has been both turbulent and complex. Perhaps because of this, the noise from the logging camps has sometimes overstated the extent of the activity. In 1969, the wood products and paper industries combined employed only a scant 4 percent of the total employed labor force in the state that year.[41] Nevertheless, wood products manufacturing is the mainstay of several western Montana communities, and is of considerable significance to the entire mountainous portion of the state. It is one of the basic resource industries upon which Montana has long been dependent, and despite its small size it ranks as Montana's largest manufacturing industry.

Over one-sixth of the state's land area (17.3 million acres) is classified as commercial forest land. An additional 3.4 million tree-covered acres are classed as noncommercial forests and another 1.4 million

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40. Projections of employment in Montana, by major industry group, are set forth in "The Montana Economy," Research Report of the Montana Economic Study, pt. 1, chap. 4 (Missoula, Montana: Bureau of Business and Economic Research, University of Montana, in progress).

41. Employment Security Commission of Montana, Annual Statewide Work Force Report for 1969, and unpublished data. The paper and allied products industry in Montana consists of one pulp and paperboard mill near Missoula. For this reason, and because of its close relationship with the lumber and wood products industry, the paper industry is included in this discussion of lumber and wood products.

TABLE 3.10

Forest Land in Montana
January 1, 1963

Item	Acres
Total land area	93,271,000
Total forest land	22,048,000
Commercial	17,300,000
Productive, reserved	1,356,000
Unproductive	3,392,000

Source: U.S. Department of Agriculture, Forest Service, Timber Trends in the United States, Forest Resource Report no. 17 (Washington, D.C.: U.S. Government Printing Office, 1965), table 1, p. 141.

are reserved in wilderness areas, national parks, and so forth (table 3.10). The forest lands--and the wood products industry--are most heavily concentrated in western Montana, but not altogether; in general, where there are mountains in eastern Montana there also are forests. A large part of the commercial forest lands are, and have always been, publicly-owned: the federal government controls over 11.8 million acres and the state and local governments 0.6 million acres, with 4.9 million acres in private ownership (table 3.11).

Early History[42]

The first sawmill of record was built in the 1840s by Father Ravalli at Stevensville in the Bitterroot Valley. In the 1860s other mills grew up near the newly established mining towns of Nevada City and Virginia City, and wherever gold was discovered, as well as at Fort Benton, the terminal for steamboat navigation on the Missouri River, and Missoula. These mills produced both sluice or flume lumber and building lumber.

Many of these mills did not survive the decline of the gold camps. Beginning in the early 1880s, however, new demands for lumber products brought about a rapid expansion in the young industry. Hard rock mining created a need for mine timbers and building lumber; railroad construction by the Utah Northern and the Northern Pacific called for more building lumber and for railroad ties. These two railroads, especially the Northern Pacific, acquired large holdings of timber lands as land grant railroads. The Montana Improvement Company, organized in 1883 by the Northern Pacific Railroad and Marcus Daly, president of The Anaconda

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42. The historical description in this section is based largely on Burlingame and Toole, A History of Montana, vol. 2, pp. 1-17.

TABLE 3.11

Commercial Forest Land in Montana
January 1, 1963

Ownership	Acres
All ownerships	17,300,000
Federal government, total	11,801,000
National forests	10,578,000
Bureau of Land Management	612,000
Indian	595,000
Miscellaneous	16,000
State and local government, total	639,000
State	601,000
County and municipal	38,000
Private, total	4,860,000
Forest industry	1,047,000
Farmer	2,002,000
Miscellaneous private	1,811,000

Source: U.S. Department of Agriculture, Forest Service, Timber Trends in the United States, Forest Resource Report no. 17 (Washington, D.C.: U.S. Government Printing Office, 1965), table 2, p. 142.

Company, became one of the major lumber producers of the period. The Great Northern Railway (which came through the state in the 1890s) was not a land grant railroad, but it purchased large acreages in order to establish its own mills.

As the industry expanded, lumbermen continued their practice of cutting timber wherever they found it, generally on public lands. Far from Washington--the seat of federal ownership--and quite contemptuous of unrealistic "eastern" laws and concepts, particularly the idea that 80, 160, or even 640 acres made a feasible forest unit, early-day producers proceeded to exploit the timber resources, often by illegal or extralegal means.

Beginning in 1884, the federal government attempted to enforce the regulations of the Timber and Stone Act and the Free Timber Act. These acts included prohibitions against commercial cutting on government lands and limitations on the size of unit which individuals could acquire. Civil and criminal suits were filed against the Montana Improvement Company and the Northern Pacific Railroad for violations of the Free Timber Act. The companies were never convicted and for some time cutting practices continued much the same. The suits represented an initial clash between private operators and federal agencies involved in managing the public lands.

In the early 1900s, lumber production came to be concentrated in a few operations. The Anaconda Company, which needed large amounts of mine timbers, entered the industry and acquired substantial acreages of forest lands, mostly from the Northern Pacific Railroad. By 1910 its holdings exceeded one million acres and the company was by far the largest producer of mine timbers and other lumber products in the state. Together

with the Somers Lumber Company, owned by the Great Northern Railroad, Anaconda accounted for a large share of total output.

According to the Thirteenth Census of the United States, there were 155 establishments (including logging camps) producing lumber and timber products in Montana in 1909. Of these, 12 establishments (or 8 percent of the total) employed 68 percent of the industry's wage earners and accounted for 70 percent of the value added.[43] These characteristics--many small producers and a handful of larger plants--still are typical of the industry. As in the early days, small mills, usually portable operations, come into production when prices are high and shut down when the market falls off.

As the twentieth century began, Montana's lumber production amounted to approximately 250 million board feet per year, less than 1 percent of national output. According to the very rough estimates available, total output fluctuated--often violently--between 200 million and 400 million board feet per year from the early 1900s until the 1930s, following changes in business activity and volume of construction.[44] In the wake of the Great Crash, Montana production plunged from an estimated 389 million board feet to 111 million board feet in 1932, as mills lay idle and men looked for work (figure 3.3). Annual employment estimates are not available for these early years, but Census of Manufactures data portray very clearly the effect of the depression of the 1930s on employment. Between 1929 and

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43. U.S. Department of Commerce and Labor, Thirteenth Census of the United States Taken in the Year 1910: Manufactures, 1909, Reports by States, vol. 9, table 1, p. 679, and p. 675.

44. U.S. Department of Agriculture, Forest Service, Lumber Production in the United States, 1799-1946, Miscellaneous Publication 669, Henry B. Steeze (Washington, D.C.: U.S. Government Printing Office, 1948), table 1, p. 10.

FIGURE 3.3

Lumber Production in Montana and the United States, 1904-1968

Sources: [Montana, 1904-1946] U.S. Department of Agriculture, Lumber Production in the United States, 1799-1946, Miscellaneous Publication 669 (Washington, D.C.: U.S. Government Printing Office, 1948), table 4, pp. 11-18.

[Montana, 1947-1956] Western Pine Association, Production by States and Species, 1947-1956, Circular 896 (Portland, Oregon: Western Pine Association, 1957), p. 5.

[Montana, 1956-1959] Western Wood Products Association, 1964-65 Statistical Yearbook (Portland, Oregon: Western Wood Products Association Statistics Department, 1966), p. s-12. (U.S. Department of Commerce, Bureau of the Census)

[Montana, 1960-1968] Western Wood Products Association, 1968 Statistical Supplement to Facts About Western Commercial Timberlands and Wood Products (Portland, Oregon: Western Wood Products Association Statistics Department, 1969), p. 21.

[Montana, 1969] Reply to inquiry to Marilyn Crocker, Western Wood Products Association, Portland, Oregon, April 16, 1970.

[United States, 1904-1929] U.S. Department of Agriculture, Lumber Production in the United States, 1799-1946, Miscellaneous Publication 669 (Washington, D.C.: U.S. Government Printing Office, 1948), table 1, p. 10.

[United States, 1930-1949] U.S. Department of Agriculture, Forest Service, Timber Trends in the United States, Forest Resource Report 17 (Washington, D.C.: U.S. Government Printing Office, 1965), table 48, p. 220. (U.S. Department of Commerce, Bureau of the Census)

[United States, 1950-1968] Western Wood Products Association, 1968 Statistical Supplement to Facts About Western Commercial Timberlands and Wood Products (Portland, Oregon: Western Wood Products Association Statistics Department, 1969), p. 23. (U.S. Department of Commerce, Bureau of the Census).

[United States, 1969] U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, vol. 50, no. 3 (Washington, D.C., March 1970), p. S-31.

1933, the number of workers in the lumber industry fell from 3,925 to 1,329 (table 3.12).

The same pattern, of course, occurred in the United States as a whole, where, in response to cyclical changes, production fluctuated between 30 to 46 billion board feet during the first 30 years of the century, and then fell off to 13.5 billion board feet in 1932.[45]

In addition to cyclical fluctuations, Montana's lumber industry also has been subject to seasonal changes in employment. The Thirteenth Census of the United States, referring to 1909, took note of the effect of snow, rain, and cold on the state's industry:

> The lumber and timber industry is to a considerable extent a seasonal industry. . . . From 2,673 wage earners in April, the month of least activity, the average number increased to 3,773 in November, the month in which the greatest number was employed.[46]

Although the industry was an important--albeit unstable--source of employment in western Montana, its presence was little noted outside the state. During the years preceding the second World War, Montana's total output rarely amounted to as much as 1 percent of national lumber production (figure 3.3). Growth and diversification in the wood products industry was taking place further west, as the Pacific Coast states filled the void left by a decline in production around the Great Lakes. For the time being, Montana's forest resources had been largely bypassed in favor of the West Coast's more abundant, higher quality timber supply.

Considerable expansion did occur in Montana's industry during World War II, of course: many small mills came into operation and lumber production

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45. Ibid.

46. U.S. Department of Commerce and Labor, Thirteenth Census of the United States Taken in the Year 1910: Manufactures, 1909, Reports by States, vol. 9, p. 673.

TABLE 3.12

Montana's Lumber and Wood Products Industry, 1899-1939

Year	Number of Establishments	All Employees		Production Workers		Value of Product ($000)	Value Added ($000)
		Number	Payroll ($000)	Number	Wages ($000)		
1899	91	2,419	1,286	2,357	1,214	3,044	2,030
1904	47	2,408	1,710	2,218	1,512	3,121	2,667
1909	155	3,452	2,450	3,106	2,185	6,334	4,469
1914	164	NA	NA	2,965	2,270	6,721	NA
1919	183	4,340	5,498	3,869	4,930	12,197	8,219
1925	76	3,951	4,733	3,647	4,127	11,639	7,241
1929	97	3,925	5,440	3,658	4,789	12,351	8,396
1933	20	1,329	1,175	1,230	996	2,445	1,473
1935	40	2,084	2,419	1,940	2,066	5,581	3,376
1939	70	2,676	NA	2,424	NA	NA	NA

Sources: [1899, 1904, and 1909] U.S. Department of Commerce and Labor, Bureau of the Census, Thirteenth Census of the United States Taken in the Year 1910: Manufactures, 1909, Reports by States, vol. 9 (Washington, D.C.: U.S. Government Printing Office, 1912), table 1, p. 679.

[1914 and 1919] U.S. Department of Commerce, Bureau of the Census, Fourteenth Census of the United States Taken in the Year 1920: Manufactures, 1919, Reports for States, vol. 9 (Washington, D.C.: U.S. Government Printing Office, 1923), tables 26 and 27, pp. 829 and 830.

[1925] U.S. Department of Commerce, Bureau of the Census, Biennial Census of Manufactures: 1925 (Washington, D.C.: U.S. Government Printing Office, 1928), table 59, p. 544.

[1929] U.S. Department of Commerce, Bureau of the Census, Fifteenth Census of the United States: 1930, Manufactures, 1929, Reports by States, vol. 3 (Washington, D.C.: U.S. Government Printing Office, 1933), table 12, p. 305.

[1931] U.S. Department of Commerce, Bureau of the Census, Biennial Census of Manufactures: 1933 (Washington, D.C.: U.S. Government Printing Office, 1936), table 1, p. 246.

[1935] U.S. Department of Commerce, Bureau of the Census, Biennial Census of Manufactures: 1935 (Washington, D.C.: U.S. Government Printing Office, 1938), table 2, p. 470.

[1939] U.S. Department of Commerce, Bureau of the Census, Sixteenth Census of the United States: 1940, Manufactures, 1939, Reports for States and Outlying Areas, vol. 3 (Washington, D.C.: U.S. Government Printing Office, 1942), table 8, p. 582.

Note: After 1925, no data were collected for firms who produced less than $5,000 worth of materials. This limitation substantially affected the number of establishments listed here but had little effect on total employment, wages, or the value of production reported by the census.

NA denotes that the data are not available.

exceeded that of the immediate prewar years by roughly one-third (figure 3.3). It was after the war, however, that the state's wood products industry began to change in several fundamental ways.

After World War II

After the war, the wood products industry in Montana still could be described accurately as a lumber industry.[47] Lumber was its major product--almost its only product except for smaller amounts of round mine timbers, railroad ties, posts, poles, pulpwood, fuel wood, and Christmas trees. One remanufacturing plant in Missoula produced window frames and sash, doors and door frames. But two important postwar developments soon brought new life to the industry: the built-up demand for housing and the need for new timber resources.

Private housing construction in the United States had, of course, almost come to a halt during the war. The tremendous increase in building beginning in 1946 insured a continued demand for lumber products. It did not, however, bring about a great increase in total lumber production; national output, even in the peak year of 1950, never exceeded that of the early 1920s (figure 3.3). Some types of lumber failed to hold their own among the various building materials; overall lumber consumption did not grow as rapidly as did the use of other materials, including other wood products such as container board and plywood.

Montana's postwar increase in lumber production was mostly a function of its large timber reserves. The state contained the largest remaining

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47. Much of the material in this section was taken from Arnold W. Bolle, William K. Gibson, and Elizabeth Hannum, The Forest Products Industry in Montana, Montana Forest and Conservation Experiment Station, Bulletin 31 (Missoula, Montana: University of Montana, 1966).

unutilized reserves in the United States. Declining timber supplies in other parts of the country caused producers to look elsewhere. At the same time improved technology and higher postwar lumber prices made it feasible to harvest Montana's steeper slopes and to use its smaller trees and its previously unacceptable species, such as spruce and lodgepole pine.

Following traditional behavior, many small portable mills jumped into production as the war ended, taking advantage of rising lumber prices. According to one source, they joined 253 mills already in operation in 1945, swelling the number to 434 in 1948.[48] In the early 1950s, several mills migrated into the state from the Pacific Coast, as a scarcity of raw materials caused mills to leave that region. Other West Coast producers moved north to British Columbia, where they would soon provide strong competition for American mills.

To keep the proper perspective, it is well to note that the increase in Montana production really had little effect on total national output. The proportion of total United States output produced in Montana has never reached 4 percent. Nevertheless, in 1955 and 1956, near the peak of the postwar expansion, output of Montana's lumber mills was twice as large as it had been 10 years earlier (figure 3.3). Employment had increased by some 2,300 workers, or 42 percent, between 1950 and 1956. Approximately 7,600 persons were at work in the industry in 1956, mostly in western Montana (table 3.13 and figure 3.4). The timber industry was a major

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48. S. Blair Hutchison and Paul D. Kemp, Forest Resources of Montana, U.S. Department of Agriculture, Forest Service, Forest Resource Report no. 5 (Washington, D.C.: U.S. Government Printing Office, 1952), p. 74.

TABLE 3.13

Employment in the Wood Products and Paper Industries, 1950-1969

Year	Wood Products and Paper, Total		Wood Products					Paper and Allied Products, Total[b]
	Number	Percentage of Total Nonagricultural Employment	Total	Logging Camps and Contractors	Sawmills and Planing Mills	Millwork and Related Products[a]	Miscellaneous Wood Products	
1950	5,374	3.6	5,374	983	3,898	417	76	0
1951	6,109	4.0	6,109	1,288	4,333	367	121	0
1952	5,873	3.8	5,873	1,169	4,207	384	113	0
1953	5,776	3.7	5,774	1,046	4,369	283	76	2
1954	6,160	3.9	6,157	1,262	4,420	381	94	3
1955	7,150	4.4	7,146	1,573	4,991	475	107	4
1956	7,651	4.5	7,645	1,686	5,242	558	159	6
1957	6,622	4.0	6,590	1,307	4,587	578	118	32
1958	6,725	4.1	6,589	1,214	4,654	581	140	136
1959	7,613	4.6	7,472	1,540	5,128	655	149	141
1960	7,406	4.4	7,230	1,506	4,880	704	140	176
1961	7,654	4.6	7,433	1,507	4,776	1,025	125	221
1962	8,232	4.8	8,008	1,475	5,362	1,052	119	224
1963	8,757	5.0	8,512	1,587	5,583	1,224	118	245
1964	8,692	4.9	8,439	1,703	5,307	1,315	114	253
1965	8,911	4.9	8,641	1,759	5,315	1,423	144	270
1966	9,201	4.9	8,872	1,944	5,389	1,359	180	329
1967	9,064	4.8	8,650	1,720	5,531	1,247	152	414
1968	9,386	4.8	8,945	1,878	5,757	1,179	131	441
1969	9,314	4.7	8,857	1,957	5,661	1,119	120	457

Source: Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana), and unpublished data.

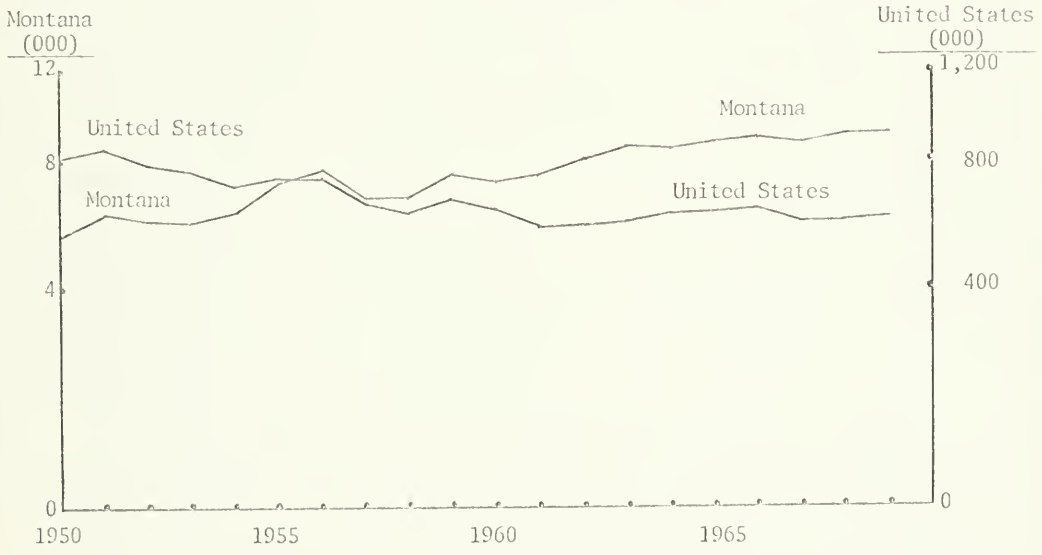
Note: Totals do not always add due to rounding. Wage and salary workers only.

[a]Includes plants producing millwork, plywood, laminated wood and prefabricated buildings.

[b]Includes pulpmills, paper, and paperboard mills.

FIGURE 3.4

Employment in the Lumber and Wood Products Industry
Montana and the United States, 1950-1969



Sources: [Montana, 1950-1969] Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana), and unpublished data.

[United States, 1950-1969] U.S. Department of Labor, Manpower Administration, Manpower Report of the President (Washington, D.C.: U.S. Government Printing Office, 1970), table C-2, p. 266.

Note: Wage and salary workers only. United States data exclude Alaska and Hawaii prior to 1959.

contributor to postwar growth in several Montana communities. In combination with the mining and smelting industry and with federal construction projects such as Hungry Horse Dam, it helped to offset sharp declines in farm income and to maintain total income and employment in western Montana.

In the fall of 1956, the postwar boom in the lumber industry came to a close. Efforts to slow the post-Korean inflation had led to higher interest rates and a scarcity of mortgage funds. Housing construction declined and lumber prices fell. In early 1957, the demand for mine timbers--still an important product at that time--fell off as copper production began to decline and open-pit mining was substituted for underground activities. The result was a sharp reduction in lumber output and employment between 1956 and 1957 (figure 3.5). Numerous small mills went out of business. These events coincided with a continuing drop in farm income and contributed to the decrease in the rate of economic growth already evident in the state.

In 1958, as home financing became easier and the industry began to recover, Montana's lumber production increased and approached the 1956 level. But not until 1961 would production substantially exceed the 1956 figure; employment would not do so until 1962 (figure 3.5). Other changes, however, were taking place in Montana's wood products industry--changes which brought diversification and greater stability to the industry.

In 1957, a pulp mill began operation west of Missoula on the Clark Fork River. The mill, a joint venture between the Waldorf Paper Products Company and Hoerner Boxes, Inc., produced kraft pulp for the two firms' paper mills and container fabricating plants in the midwest. In 1959, the mill was expanded and a paper plant added; in 1966, a second major expansion was completed, with the installation of a second paper-making

FIGURE 3.5

Employment and Production in Montana Lumber and Wood Products Industry
1950-1969

Sources: [Production, 1950-1956] Western Pine Association, Production by States and Species, 1947-1956, Circular 896 (Portland, Oregon: Western Pine Association, 1957), p. 5.

[Production, 1956-1959] Western Wood Products Association, 1964-65 Statistical Yearbook (Portland, Oregon: Western Wood Products Association Statistics Department, 1966), p. s-12. (U.S. Department of Commerce, Bureau of the Census)

[Production, 1960-1968] Western Wood Products Association, 1968 Statistical Supplement to Facts About Western Commercial Timberlands and Wood Products (Portland, Oregon: Western Wood Products Association Statistics Department, 1969), p. 21.

[Production, 1969] Reply to inquiry to Marilyn Crocker, Western Wood Products Association, Portland, Oregon, April 16, 1970.

[Employment, 1950-1969] Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana), and unpublished data.

line and new facilities to increase pulping capacity. Also in 1966, the two parent firms merged and became the Hoerner Waldorf Corporation of Montana.

The Missoula Valley was chosen as the location for the new enterprise because of the simultaneous availability of water, power, and raw materials--waste wood residuals. By creating a market for residues from the existing wood products industry, the pulp and paper operation has contributed greatly to the efficient utilization of forest resources in western Montana. It also has added to the cyclic stability of the 40 sawmill and plywood operations which supply it with chips for pulp and hogged fuel for its steam generation plant. Some experts believe that without the steady income from chips in the late 1950s, some of the mills supplying Hoerner Waldorf would have ceased operation.[49] Others point out that the anticipated income from chips has been incorporated into the bidding prices for Forest Service timber, thus reducing the benefits for many producers. Because the pulp mill operates year round, it also tended to lessen seasonal fluctuations in employment.

Only one small plywood plant was in operation in Montana in 1955; within a few years the number had grown to six. The six plants were located in Missoula, Polson, Kalispell, and Whitefish, and in Columbia Falls and Libby, where they were integrated with lumber operations. Most of the new mills were subsidiaries of West Coast firms or moved from the West Coast, where logs for plywood were becoming scarce and expensive. Like the pulp and paper mill these plants operate on a year-round basis; for the most part they, too, have added to the stability of the industry.

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49. Bolle, Gibson, and Hannum, Forest Products Industry in Montana, p. 19.

TABLE 3.14

Montana's Lumber and Wood Products Industry Since 1954

Year	All Employees		Production Workers			Value Added[a]	Capital Expenditures
	Number	Payroll ($000)	Number	Man-Hours (000)	Wages ($000)	($000)	($000)
1954	6,192	23,864	5,635	10,503	20,687	40,751	6,727
1955	7,093	28,230	6,491	11,157	25,059	55,447	8,810
1956	8,279	31,950	7,619	12,383	28,373	73,270	8,804
1957	6,895	26,850	6,307	10,123	23,546	46,358	3,909
1958	6,669	29,213	5,868	10,999	24,363	47,549	6,756
1959	7,383	33,432	6,621	12,383	28,667	63,352	NA
1960	7,040	31,855	6,352	11,938	27,437	52,810	NA
1961	7,188	34,904	6,356	12,657	29,794	58,264	5,958[b]
1962	7,225	35,823	6,411	13,233	31,187	66,467	13,681
1963	8,297	42,126	7,423	14,861	36,287	70,670	9,755
1964	8,616	46,293	7,726	15,803	39,796	78,633	11,089[b]
1965	8,841	47,647	7,900	15,706	40,768	75,376	9,376
1966	8,968	50,429	8,042	15,481	42,803	78,803	8,628

Sources: [1954-1955] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1955 (Washington, D.C.: U.S. Government Printing Office, 1957), table 3, pp. 54-55.

[1956] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1956 (Washington, D.C.: U.S. Government Printing Office, 1958), table 3, p. 58.

[1957] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1957 (Washington, D.C.: U.S. Government Printing Office, 1959), table 3, p. 54.

[1958] U.S. Department of Commerce, Bureau of the Census, U.S. Census of Manufactures: 1958, Montana, Area Report MC58(3)-25 (Washington, D.C.: U.S. Government Printing Office, 1960), table 4, p. 25-6.

[1959-1960] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1959 and 1960 (Washington, D.C.: U.S. Government Printing Office, 1962), table 2, pp. 232-233.

[1961-1962] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1962 (Washington, D.C.: U.S. Government Printing Office, 1964), table 2, pp. 228-229.

[1963] U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1963, Area Statistics, Montana, MC63(3)-27 (Washington, D.C.: U.S. Government Printing Office, 1966), table 5, p. 27-7.

[1964-1965] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1964 and 1965 (Washington, D.C.: U.S. Government Printing Office, 1968), table 3, pp. 373 and 381.

[1966] U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1966, Statistics for States, Standard Metropolitan Statistical Areas, and Large Industrial Counties, pt. 8 (Washington, D.C.: U.S. Government Printing Office, 1969), table 3, p. 7.

Notes: Data from the 1947 Census of Manufactures are not included because they cannot be compared to later census figures.

Employment figures are not comparable to those in table 3.13.

NA denotes that the data are not available.

[a]Figures for 1954 and 1955 are unadjusted--that is these data are not adjusted for resales (difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) and the net change in finished goods and work-in-process inventories between the beginning and end of the year. Value added figures for 1956 on are adjusted. Adjusted figures for 1954 and 1955 are not available.

[b]Figure either has standard error exceeding 15 percent or is not consistent with other census series and related data.

They do, of course, compete with lumber producers for logs and for markets. Overall, however, their effect has been to raise employment and add to the diversity of the industry.

While these changes were occurring, the larger existing lumber mills were modernizing their plants, increasing their production capacity and their efficiency, and generally adding new products. They added facilities for remanufacture: laminating, paneling, finger-jointing, production of Pres-To-Logs, etc. They installed chippers and debarkers so that they could sell their chips and other mill waste to the Missoula pulp mill. Two of them, as noted above, added plywood production facilities. Plywood had taken much of the market for one-inch boards, but the demand for dimension stock (two-by-fours and larger) remained strong. Since small dimension, particularly studs (eight-food long two-by-fours), can be manufactured from small logs, the establishment of stud mills was encouraged. A number of the mills using small logs were located in the lodgepole pine areas of eastern Montana, where the industry had not operated before.

Many of these changes occurred during the period 1956 to 1960, while the production of dimension lumber was down and overall output and employment in the industry showed little change. Tables 3.13 and 3.14 confirm the general lack of growth in wood products during this period. Nevertheless, the diversification, modernization, and consolidation which occurred during those years were measures of progress. As the demand for wood products once again began to grow, the Montana forest industries were ready to take advantage of the improving market--supplying not just lumber but a variety of wood products.

It should also be stressed that overall, since World War II, the wood products industry has been one of the few industries in Montana which

has grown more rapidly than its counterpart in the United States. In so doing it has been a positive force in western Montana, providing several thousand new jobs in an area where other major industries--agriculture and mining--were letting workers go.

The Industries Today

Montana's wood products industry today consists of approximately 439 operations: logging camps, sawmills, millwork plants, plywood and veneer mills, a few pole treating yards, post yards, and Christmas tree producers.[50] One pulp and paper mill also operates near Missoula. It is an industry which is still growing and diversifying.

The first particle board plant in the state, at Missoula, is scheduled to begin production early in 1971. Evans Products Company, which operates a sawmill and plywood factory at Missoula, is constructing the new plant. It will provide 140 new jobs, and, like the pulp mill, will provide a market for what were once waste products, thereby contributing to greater utilization of the timber resources. According to Evans Company officials, planer shavings, chip fines, sawdust and plywood trimming will be purchased from mills within 70 or 80 miles of Missoula.

Also under construction in Missoula in the spring of 1970 is a formaldehyde plant for the Borden Chemicals Company. This plant is being built adjacent to the plywood and particle board operations. It will produce formaldehyde, urea and phenolic resins. Much of the resin produced will be used by the particle board plant. Employment will be very small--approximately 12 persons.[51]

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50. U.S. Department of Commerce, Census of Manufactures: 1963, Area Statistics, Montana, table 5, p. 27-7.

51. As indicated in various newspaper reports.

The Borden plant appears to be a small step toward the integration of western Montana's wood products industry. It apparently is being built in Missoula to take advantage of the plywood and particle board market for resin. Further advances of this kind are possible.

The major species of timber used by the Montana industry are Douglas fir, larch, ponderosa pine, Englemann spruce, and lodgepole pine. Two-thirds of the timber supply comes from federal lands (mostly national forests); 20 percent comes from company owned forests.[52] Improved harvesting and milling techniques have made it possible to harvest logs on all but the steepest slopes and to use the smaller and frequently lower quality logs whose utilization once was uneconomical.

Most of the logs cut in Montana are manufactured into products here, although some are shipped outside the state. The major products, of course, are finished and rough lumber, pulp and paper, and plywood. Laminated beams, modular panels, molding, window frames and sashes, door frames, prefabricated houses, posts, poles, and Christmas trees also are marketed. The lumber mills range in size from small portable mills producing a few thousand feet of rough lumber a year to the largest integrated mill at Libby, which produces more than 120 million feet of finished lumber a year in addition to plywood, poles, Stractan (an industrial gum used by pharmaceutical companies) and other products.

Of the 439 wood products operations, more than half had fewer than 5 employees in 1963. Only 13 had more than 100 workers; 5 plants had over 250 employees; 1 had more than 1,000.[53]

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52. Western Wood Products Association, 1968 Statistical Supplement to Facts About Western Commercial Timberlands and Wood Products (Portland, Oregon: Western Wood Products Association Statistical Department, 1969), p. 5.

53. U.S. Department of Commerce, Census of Manufactures: 1963, Area Statistics, Montana, table 8, p. 27-9.

Most of the production is concentrated in the larger plants and in a few counties. Table 3.15 shows the extent of concentration, by employment and value added, in the two leading wood products counties in 1963--Missoula and Lincoln Counties. Together, they accounted for one-half the employment and the value added in 1963. Since that year, the growth and diversification of the industry in Missoula County has made it the undisputed center of the state's wood products activities. No separate industry figures are available for Flathead County, the third ranking producer. Timber products plants in Lake and Sanders Counties combined employed another 13 percent of the workers and contributed 14 percent of total value added.

Several national companies operate sawmills in the state: Diamond-Gardner, at Superior; St. Regis, at Libby; and Anaconda, at Bonner near Missoula. Pack River Lumber Company, a major producer in the west with headquarters in Spokane, Washington, operates several smaller mills in the state--at St. Regis, Thompson Falls, Plains, and Polson--plus a plywood plant at Polson. Hoerner Waldorf operates the pulp and paper plant west of Missoula. The Missoula plywood plant is run by the Van-Evan Company, a subsidiary of Evan Products Company, which is building the particle board plant next door. This roll call of national or regional companies further illustrates the participation of the Montana industry in the movement toward integrated ownership and centralization.

Markets for Montana wood products are concentrated in the midwest. According to the Western Wood Products Association, 46 percent of the Montana lumber shipped in 1968 went to midwest states and 24 percent to other western states. Seventy percent of the lumber shipped went by rail;

TABLE 3.15

Concentration of Montana's Lumber and Wood Products Industry, 1963

County	Total Employment		Value Added	
	Number	Percentage of Total	Amount ($000)	Percentage of Total
State total	8,297	100	70,670	100
Missoula	2,432	29	22,621	32
Lincoln	1,767	21	13,165	19
Lake	584	7	5,541	8
Sanders	514	6	4,592	6

Source: [All data except percentages] U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1963, Area Statistics, Montana, MC63(3)-27 (Washington, D.C.: U.S. Government Printing Office, 1966), tables 5 and 7, pp. 27-7 and 27-8.

Notes: Separate data for the wood products industry are not available for Flathead County, which is also a major production area.

Excludes the pulp and paper mill in Missoula County.

the remainder by truck. About 79 percent is sold through wholesalers (chiefly brokers).[54] Paper produced in Hoerner Waldorf's Missoula plant is shipped to the midwest for manufacture into cardboard boxes. Some pulp is shipped to St. Paul where it is made into paper for packaging frozen food.

The increasing product diversity, and the presence of more large corporations and of larger-sized production units have undoubtedly contributed to the stability of Montana's wood products industry. Indeed, one of the most interesting features of the wood products industry--in Montana and in the United States--between 1963 and 1969 was the surprising stability of employment and production in the face of a shortage of mortgage funds and declining housing starts. Some of the reasons for the increased stability in Montana have already been cited--greater diversity, larger (and by implication, better-financed) production units, and a long-term area growth trend which has tended to obscure cyclical fluctuations. It is worth noting also that residential construction nowadays takes only approximately 40 percent of the softwood and plywood consumed in the United States.[55] Figure 3.6 seems to confirm the lumber industry's declining dependence upon new housing starts.

There was a decline in employment in the Montana industry from late 1966 to late 1967 which is partly obscured by the use of annual figures in the tables and charts. For a few months in 1967, employment in the wood products industry (excluding paper) was down about 6

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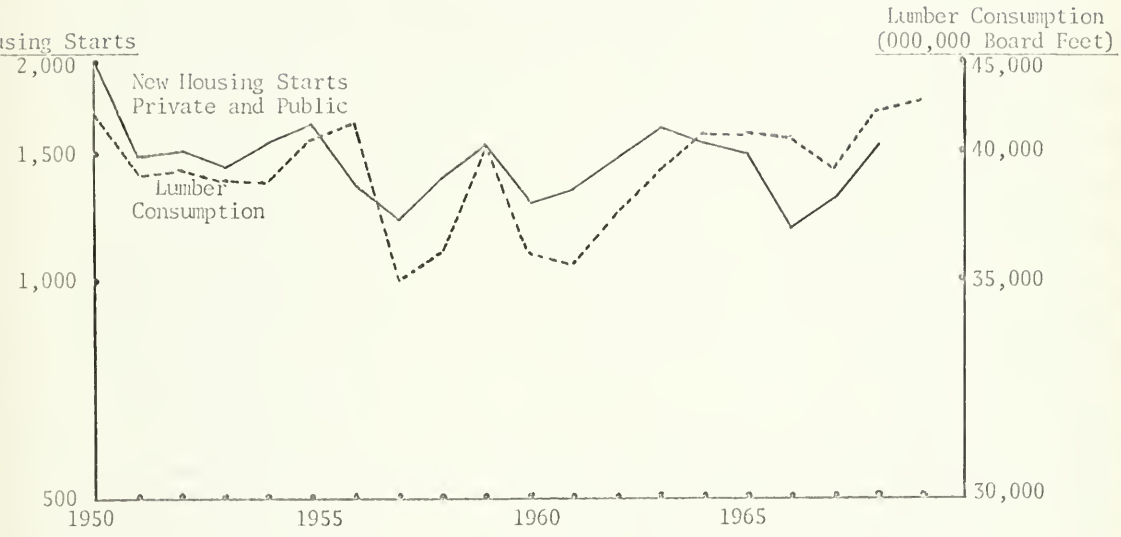
54. Western Wood Products Association, 1968 Statistical Supplement to Facts for Opinion Makers About Western Commercial Timberlands and Wood Products, p. 5.

55. U.S. Department of Agriculture, Forest Service, Lumber and Plywood Supply, A Situation Report (Washington, D.C., March 1969), p. 10.

FIGURE 3.6

Lumber Consumption and the Number of New Housing Starts
United States, 1950-1969



Sources: [Housing starts, 1950-1968] U.S. Department of Commerce, Office of Business Economics, 1969 Business Statistics, 17th Biennial Edition (Washington, D.C.: U.S. Government Printing Office, 1969), p. 52. (U.S. Department of Commerce, Bureau of the Census)

[Consumption, 1950-1968] U.S. Department of Commerce, Office of Business Economics, 1969 Business Statistics, 17th Biennial Edition (Washington, D.C.: U.S. Government Printing Office, 1969), p. 149. (National Forest Products Association and U.S. Department of Commerce, Bureau of the Census)

[Consumption, 1969] U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, vol. 50, no. 3 (March 1970), p. S-31.

Notes: Data exclude Alaska prior to January 1961 and Hawaii prior to January 1963.

Housing starts include total public and private nonfarm units; 1969 data are not available.

percent.[56] It soon recovered and exceeded its earlier level. Employment, of course, usually fluctuates less than production.

Then, in late 1969 and particularly in early 1970, as money for construction became increasingly scarce and evidence of a general recession increased, real signs of difficulty began to appear: shortened work weeks became the rule in most plants and a few shutdowns occurred. At this writing (May 1970) there is no doubt that Montana's wood products industry has come upon hard times. How hard and for how long it is impossible to predict. Because most firms have preferred to shorten the work week rather than lay off workers, employment figures do not reflect the extent of the decline. The preliminary 1969 production estimates for Montana and the United States indicate that the Montana industry has been more severely affected (figure 3.3).

In looking toward the future, one wonders whether cyclical changes may not become more significant in Montana once the industry has attained optimum production and the long-term growth trend comes to an end.

Seasonal fluctuations in employment have become smaller, as an increasing proportion of the jobs provided by the industry are year-round occupations. Weather still causes shutdowns of logging operations and of smaller mills, but employees of the larger, diversified mills are seldom subject to the seasonal layoffs which once were quite common. Immediately after World War II, a typical seasonal pattern might mean a drop in employment to 80 percent of the annual average in April while during the peak employment month (September) the number of workers might

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56. Bureau of Business and Economic Research, University of Montana, seasonally adjusted index. Based on employment figures from the Employment Security Commission of Montana.

exceed the average by 17 percent. In other words, the number of workers employed might vary from April to September by as much as 2,000, at a time when average annual employment amounted to only 5,600. In recent years, months of high and low employment have generally swung from only 10 percent above (in August) to 9 or 10 percent below the average (in April). On a base of approximately 9,000, these changes amount to approximately 1,800.[57]

Those mills which are the most seasonal are the smaller, less diversified operations in the smaller towns. They also are the most cyclical, and their erratic nature still creates problems for the communities in which they are located. Many of their employees live on small farms or ranches and supplement their incomes through farming activities.

The 8,900 employees of lumber and wood products industries earned at an average annual rate of $6,700 in 1968, just at the average for all Montana manufacturing employees (tables 3.16 and 3.5). Sawmill workers and employees of millwork and plywood plants, with average year-round wages of $7,000 and $6,700 respectively, fared better than loggers, who earned only $6,000. But the elite of the wood products industry--and of all manufacturing--are the pulp and paper mill workers, who averaged $9,500 in 1968.

The value added per worker in the lumber and wood products industry (excluding paper) is generally low. In 1966, value added per production worker for the year was less than $10,000 (table 3.17); in primary metals and in food products--Montana's other major manufacturing industries--it

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57. Computations based on employment data from the Employment Security Commission of Montana.

TABLE 3.16

Employment and Earnings in Montana's
Wood Products Industry, 1968

Industry	Average Monthly Employment	Average Earnings (Annual Rate)
Lumber and wood products industries	8,945	$6,708
Logging camps and logging contractors	1,878	5,965
Sawmills and planing mills	5,757	6,982
Millwork, veneer, plywood, and prefabricated structural wood products	1,179	6,710
Miscellaneous wood products	131	5,289
Paper and allied products	441	9,546

Source: Employment Security Commission of Montana, unpublished data (Helena, Montana).

Note: Wage and salary workers only.

TABLE 3.17

Value Added in the Lumber and Wood Products Industry: Some Comparisons
Montana and the United States, 1958 and 1963-1966

Year	Value Added Per Production Worker		Montana as Percentage of United States	Value Added Per Dollar of Wages		Montana as Percentage of United States	Wages Per Production Worker Man-Hour		Montana as Percentage of United States
	United States	Montana		United States	Montana		United States	Montana	
1958	$6,286	$ 8,103	128.9	$1.95	$1.95	100.0	$1.69	$2.22	131.4
1963	8,083	9,520	117.8	2.07	1.95	94.2	1.99	2.44	122.6
1964	8,901	10,178	114.3	2.13	1.98	93.0	2.08	2.52	121.2
1965	8,831	9,387	106.3	2.11	1.83	86.7	2.10	2.58	122.9
1966	9,464	9,799	103.5	2.16	1.84	85.2	2.18	2.76	126.6

Sources: [Montana, except percentages, 1958] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, U.S. Census of Manufactures: 1958, Montana, Area Report, MC58(3)-25 (Washington, D.C.: U.S. Government Printing Office, 1960), table 4, p. 25-6.

[Montana, except percentages, 1963] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Census of Manufactures: 1963, Area Statistics, MC63(3)-27 (Washington, D.C.: U.S. Government Printing Office, 1966), table 5, p. 27-7.

[Montana, except percentages, 1964; and United States, 1963-1964] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1964 and 1965 (Washington, D.C.: U.S. Government Printing Office, 1968), tables 2 and 3, pp. 14, 15, 373, and 381.

[Montana, except percentages, and United States, 1965-1966] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1966 (Washington, D.C.: U.S. Government Printing Office, 1969), tables 2 and 3, pp. 12, 373, and 381.

[United States, 1958] Computed from data obtained from U.S. Department of Commerce, Bureau of the Census, Annual Survey of Manufactures: 1959 and 1960 (Washington, D.C.: U.S. Government Printing Office, 1962), table 2, p. 15.

ranged between $20,000 and $25,000 in both the state and the nation (see tables 2.4 and 3.9). In Montana's lumber and wood products industry, value added per year per production worker exceeded the national average between 1963 and 1966, but the state's advantage declined almost every year. Value added per dollar of wages in Montana was substantially less than in the United States, and also became proportionately less every year between 1963 and 1966. Presumably, the difference is caused by the higher average hourly wage rates in the state. The figures point to a need for further substitution of capital for labor if the Montana industry is to remain competitive and present wage rates are to be maintained. They also suggest that the small, less efficient mills in the state may find it increasingly difficult to continue operation.

Special Problems

Resources. Montana's forests have come into their own partly because of a depletion of higher quality resources in other areas. Much of the state's timber grows on steeper slopes, is of smaller size and lower quality, and offers a lesser profit margin than the stands formerly utilized in the Pacific Northwest and other parts of the country. These circumstances make the Montana industry less stable than wood products operations in areas with better quality timber.[58]

There has been some concern that under present use rates timber supplies may prove inadequate for the future. Bills, notably the National Forest Timber Conservation and Management Bill of 1969, have been introduced in Congress, to provide for more intensive timber management. It

58. Bolle, Gibson, and Hannum, Forest Products Industry in Montana, p. 21.

is likely that sooner or later Congress will provide funds to enable the U.S. Forest Service to accelerate its reforestation programs. It is possible also that as the pressure for federal funds increases, the question may be raised as to whether limited funds might be better spent in other, less marginal timber production areas than Montana.

Markets. Traditionally, Montana producers have been production oriented; they have tried to sell what they produced rather than produce for the most favorable market. This is not true today of the larger producers, especially those affiliated with national firms. These mills generally understand the market and have well-established marketing procedures. It is still true of many of the small and medium-sized mills which are capable of producing only a few products and who often have little knowledge of the market. These mills usually operate through brokers who serve as middlemen and sell on a commission basis. Most of these brokers have offices on the West Coast, Minneapolis, or Chicago. The number of brokers is declining as the number of mills using their services decreases. Bolle notes that small mills on the West Coast often sell through the marketing organizations of the large companies.[59] This may be a practice which could be transferred to the Montana industry.

Environment. The time was when wood products industries could concern themselves almost exclusively with production and marketing, and an occasional land-use conflict or disagreement with public land management policies. Today, the industry's problems have expanded to include questions of social responsibility and environmental quality.

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59. Ibid., p. 44.

As public concern in these areas has grown, the wood products manufacturer, the logger, and many foresters have had to look at their operations in new and often unfamiliar ways.

The industry has faced increasing criticism for its contributions to air and water pollution problems in Montana's mountain valleys. Anti-pollution laws have become stricter, sometimes requiring substantial investments in improved equipment.

The public concern with pollution has been extended to a general concern for the aesthetic quality of the environment. Established forestry practices such as clearcutting and slashburning are under attack. Competition for forest use by recreationists and outdoor enthusiasts is becoming stronger. These developments can be expected to reduce the amount of land available for timber production and/or raise the cost of production.

These are not problems which will gradually disappear. Pressures for a clean environment and for preservation of scenic beauty will continue and may well intensify. There is little doubt that Montana's wood products industry will continue to be subject to some public disapprobation. Its response will need to be considerably more sophisticated than the endless citing of undocumented statements about the economic contribution of the industry to Western Montana. The industry appears to recognize this; in an effort to meet air pollution control standards set by the state, many alterations of existing wood products plants either have been completed or are underway at the present time (May 1970). With the lumber market in a state of recession, some of these new installations represent a very significant financial burden. The U.S.

Forest Service--which has been roundly criticized for its land management policies in Montana--has done considerable public soul-searching recently as to the effect of those policies on the environment.[60] Heavy public pressure brought about all these developments

The Outlook

The American lumber and wood products industry is expected to grow rather slowly during the next few years. Per capita consumption is declining, and increased demand will depend upon population growth. The National Planning Association has predicted an average annual growth rate of 2.3 percent in total industry output, measured in constant dollars, between 1968 and 1980. Predictions for the pulp and paper industry point to a 3.4 percent annual increase. Over the same period, the National Planning Association expects total gross national product to increase 4.2 percent per year.[61]

Employment in lumber and wood products is expected to decline substantially as output per worker increases; in the paper industry, where the growth in total output will be greater, some increase in employment is anticipated at the national level.[62]

Because of Montana's presently unique position as an area with an underutlized forest resource, the state's wood products industry probably will

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60. For example, U.S. Department of Agriculture, Forest Service, Management Practices on the Bitterroot Forest, A Task Force Appraisal, May 1969-April 1970 (Missoula, Montana, 1970).

61. Al-Samarrie, Economic Projections to 1980: Growth Patterns for the Coming Decade, table VI-6, pp. S-66 and S-67.

62. Ibid., p. S-80.

not follow the national trend. Continuing the pattern since World War II, its growth probably will exceed that of wood products nationally, and it is quite likely that employment in 1980 will be greater than in the late 1960s. In part, this depends upon timber management practices and upon the continued adaptability of the Montana industry--its success in producing for a changing market and its willingness and ability to employ new logging and wood processing technology.[63] Industry activity may expand in eastern Montana where large supplies of small timber exist. More of the less productive and presently inaccessible commercial forest land in western Montana may be logged.

It is quite possible, too, that by 1980 another pulp and paper mill may be situated in western Montana. Several potential sites have been pinpointed--places with adequate pulpwood and water supplies. They include locations near Three Forks in Gallatin County, Livingston (Park County), Great Falls (Cascade County), Hungry Horse Dam (Flathead County), and Paradise (Sanders County). The Sanders County site seems to be the most promising from the standpoint of potential capacity.[64]

How much longer these growth trends in Montana might continue is problematical. We have mentioned the increased competition for the use of Montana's forests, particularly for recreation, and the emphasis on environmental quality. There is also the possibility that projections of national demand for lumber products may prove to be too high should new housing

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63. Brian R. Wall, Projected Developments of the Timber Economy of the Columbia-North Pacific Region, U.S. Department of Agriculture, Pacific Northwest Forest and Range Experiment Station, U.S.D.A. Forest Service Research Paper PNW-84 (Portland, Oregon, 1969), p. 24.

64. Clarence W. Nelson, The Timber Economy of the Ninth District West, Federal Reserve Bank of Minneapolis, Special Research Report (Minneapolis, Minnesota, November 1963), table 17, p. 47.

construction methods, stressing other materials, be developed and prove popular. The availability of substitute materials, in combination with the concern for scenic values and environment, could create pressures which many forest industry people seem reluctant to contemplate. Those concerned with environmental degradation in forest areas should remember, however, that the production of substitute building materials such as steel and plastics also involves considerable pollution.

Once the current recession ends and the construction industry (including housing) recovers, wood products and paper are likely to be among Montana's growth industries, at least for the next ten years. It would be nice if we were talking about a great many potential new jobs; unfortunately we are not. The rather extensive growth during the sixties resulted in only 1,700 more workers (table 3.6). The increase in the 1970s probably will amount to about 1,100 workers. Total employment in 1980 is estimated at 10,000, compared to 8,900 in 1968.[65] Nevertheless, there will be an impact on the communities involved. Greater concern for the environment may mean more workers will be needed in the woods. More remanufacturing may take place. And there is an increasing possibility that, as the forest industries grow, some supply firms and related industries will be established and create some added employment, particularly in the Missoula area.

The Outlook for Manufacturing

To talk about the outlook for manufacturing in Montana is a difficult task, for even in this state, with its limited activities, manufactured

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65. "The Montana Economy," Research Report of the Montana Economic Study, pt. 1, chap. 4.

products range from canned beans to aluminum ingots, from newspapers to prefabricated houses.

This chapter has described manufacturing industries in general and the food products and wood products industries in particular. The smelting and refining industries, also an important part of Montana's manufacturing sector, were discussed in the chapter on mining. In the case of each industry, a few words about its prospects were included in the analysis.

It seems obvious now that some tying together is required. In combination, what do all the bits and pieces mean? What is the outlook for manufacturing as a whole in Montana?

One of the best ways of measuring the growth of an industry is by the number of new jobs it provides. During the 1950s and 1960s, Montana's manufacturing industries did very well in this respect; they were one of only two industry groups in the state--the other was finance--to keep pace with the national increase in employment. The state owed its good showing mostly to the wood products industry, which accounted for over half the new manufacturing jobs in Montana between 1950 and 1969.

New manufacturing jobs are important in Montana because they are usually good-paying jobs. If Montana is to increase the average annual earnings of its workers and the annual per capita income of its residents, it must somehow find a way to speed up the growth of industries which pay higher-than-average wages.

Like the mineral industries and agriculture, most of Montana's major manufacturing industries are basic industries. They produce for export out of state, and an increase in the number of their employees frequently means more jobs in trade, services, finance, and other derivative industries.

Unfortunately, the Montana Economic Study projections indicate that the rate of growth in manufacturing employment will decline during the 1970s. If

the 1968 employment figures are adjusted to eliminate the effects of the strike in the smelting and refining industry, then total employment in manufacturing increased by 3,600 jobs or 15 percent between 1960 and 1968; between 1968 and 1980 the number of manufacturing jobs is expected to grow by about 2,600, or 11 percent.[66]

A good share of the new jobs--approximately 1,100--will be provided by the wood products industry. Most of the others will come from the small, miscellaneous manufacturing industries scattered about the state. The Montana Economic Study projections suggest that some increase (approximately 300 jobs) may also occur in food products employment, but it will be offset by a decline of about 400 in the number of smelting and refining workers.[67]

It is always possible, of course, that lightning may strike; a native son made good, or an industrialist tired of overpopulated and overpolluted industrial areas, may establish that long sought after, large scale electronics plant or scientific complex in Montana.

In the meantime, those concerned with the development of the state cannot realistically expect its manufacturing industries to provide the growth in employment opportunities which Montana so desperately needs.

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66. Ibid.

67. Ibid.

CHAPTER 4

THE CONSTRUCTION INDUSTRY

The construction industry is an interesting conglomeration of firms ranging from a few medium-sized, well-financed heavy construction operators to many speculative home builders and other very small contractors.

During the past 20 years, the industry has usually accounted for from 5 to 6 percent of the total employed labor force in the state; in 1969, with the drop in building construction employment, the proportion declined to just about 4 percent.[1] In 1969, total earnings from construction (wages and other labor income plus proprietors' income) in Montana amounted to 7 percent of total earnings from all participation in the labor force,[2] a larger proportion than either the mining or finance

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1. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population: 1960, General Social and Economic Characteristics, Montana, Final Report PC(1)-28C (Washington, D.C.: U.S. Government Printing Office, 1961), table 61, p. 28-105; Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, Montana Civilian Work Force (Helena, Montana); and table 4.2.

2. U.S. Department of Commerce, Office of Business Economics, unpublished data (Washington, D.C., 1970).

industries contributed, but smaller than all other industry groups. Table 4.1 gives earnings from construction, by regions, in 1966, the latest year for which regional data are available. Of course, no one year is ever typical in the construction industry, especially in Montana where one large project can change the direction of the industry.

For most analyses, the construction industry is divided into three major groups: general building contractors, heavy construction contractors, and special trade contractors who undertake specialized activities such as plumbing, painting, and carpentering. The latter are primarily engaged in work related to building construction.

One of the factors retarding progress in this sector is that, while other industries have been devising new production methods and new ways of substituting capital for labor, the construction industry has changed very little. More than any other major industry, its members--especially the housing contractors--produce under conditions similar to those common 50 years ago. In many ways, home building practices today still provide an example of the small-scale handicraft-type industry.

Although building construction is more important as an employer in the national construction industry, in Montana, heavy construction plays an unusually significant role. Since 1961, the state's heavy construction contractors have employed from 33 to 47 percent of all construction workers. The 47 percent peak occurred in 1969, when building construction was depressed (table 4.2). Nationally, heavy contractors generally employ only 20 percent of all construction workers.[3]

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3. U.S. Department of Labor, Bureau of Labor Statistics, Division of Industry Statistics, unpublished data (Washington, D.C., March 1970).

TABLE 4.1

Earnings From Contract Construction, by Economic Regions
Montana, 1966

Region	Contract Construction Earnings ($000)	Percentage of Total Earnings
The state	101,000	6.8
Region I[a]	18,130	6.6
Region II[b]	35,724	8.4
Region III[c]	5,268	3.6
Region IV[d]	22,255	6.8
Region V[e]	15,900	6.6
Region VI[f]	3,251	4.6

Source: U.S. Department of Commerce, Office of Business Economics, unpublished data (Washington D.C., February 1969).

Notes: Earnings figures represent income from current participation in the labor force: wages and salaries, other labor income, and proprietors' income. Total may not add because of rounding.

Since 1966, the state total has been revised to $102 million, still 6.8 percent of total earnings.

[a]Includes Flathead, Granite, Lake, Lincoln, Mineral, Missoula, Ravalli, and Sanders Counties.

[b]Includes Blaine, Cascade, Chouteau, Fergus, Glacier, Hill, Judith Basin, Liberty, Meagher, Petroleum, Phillips, Pondera, Teton, and Toole Counties.

[c]Includes Daniels, Dawson, McCone, Richland, Roosevelt, Sheridan, Valley, and Wibaux Counties.

[d]Includes Beaverhead, Broadwater, Deer Lodge, Gallatin, Jefferson, Lewis and Clark, Madison, Park, Powell, and Silver Bow Counties.

[e]Includes Big Horn, Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Treasure, Wheatland, and Yellowstone Counties.

[f]Includes Carter, Custer, Fallon, Garfield, Powder River, Prairie, and Rosebud Counties.

TABLE 4.2

Employment in the Construction Industry
Montana, 1950-1969

ar	Contract Construction, Total		General Building Contractors[a]	Heavy Construction Contractors[b]	Special Trade Contractors[c]
	Number	Percentage of Total Nonagricultural Employment			
50	10,500	7.0	4,100	3,500	2,900
51	10,600	7.0	3,900	3,800	2,900
52	10,500	6.8	3,600	4,200	2,700
53	9,500	6.1	3,800	2,900	2,800
54	10,600	6.7	4,400	3,100	3,100
55	10,400	6.4	4,200	2,800	3,400
56	11,700	6.9	4,300	3,800	3,600
57	10,800	6.6	3,700	3,400	3,700
58	10,900	6.7	3,900	3,200	3,800
59	11,600	7.0	4,600	3,000	4,000
60	11,000	6.6	4,300	2,800	3,900
61	11,300	6.8	3,400	4,000	3,900
62	12,600	7.3	3,400	4,700	4,500
63	12,300	7.0	4,200	4,100	4,000
64	11,400	6.5	3,700	4,100	3,600
65	12,000	6.6	3,300	4,500	4,200
66	11,600	6.2	3,100	4,300	4,200
67.	11,700	6.2	3,700	4,100	3,900
68	11,500	5.9	2,900	4,900	3,700
69[d]	10,300	5.2	2,200	4,700	3,400

ource: Employment Security Commission of Montana, "Employees on Montana Nonagricultural ayrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana).

ote: Wage and salary workers only.

General contractors engaged in construction (including new work, additions, alterations, nd repair) of buildings such as houses; apartment buildings; farm buildings; industrial, ommercial, institutional, and public buildings.

General contractors engaged in heavy construction, such as highways and streets, bridges, ewers, irrigation projects, dams, and missile facilities.

Contractors who undertake specialized activities such as plumbing, painting, plastering, arpentering and who are primarily engaged in work relating to building construction.

Preliminary.

The importance of heavy construction in Montana is easily explained. The state's small population and labor force mean that large-scale federal construction projects such as the interstate highway program, hydroelectric dams and large-scale military installations have a substantial impact. For the most part, projects of this type have come along with enough regularity to keep heavy construction activity (and some special trade construction work) at fairly high levels during the past 20 years. This has been especially true since 1961. Nevertheless, employment in heavy construction in Montana has not kept up with the increase in the United States.

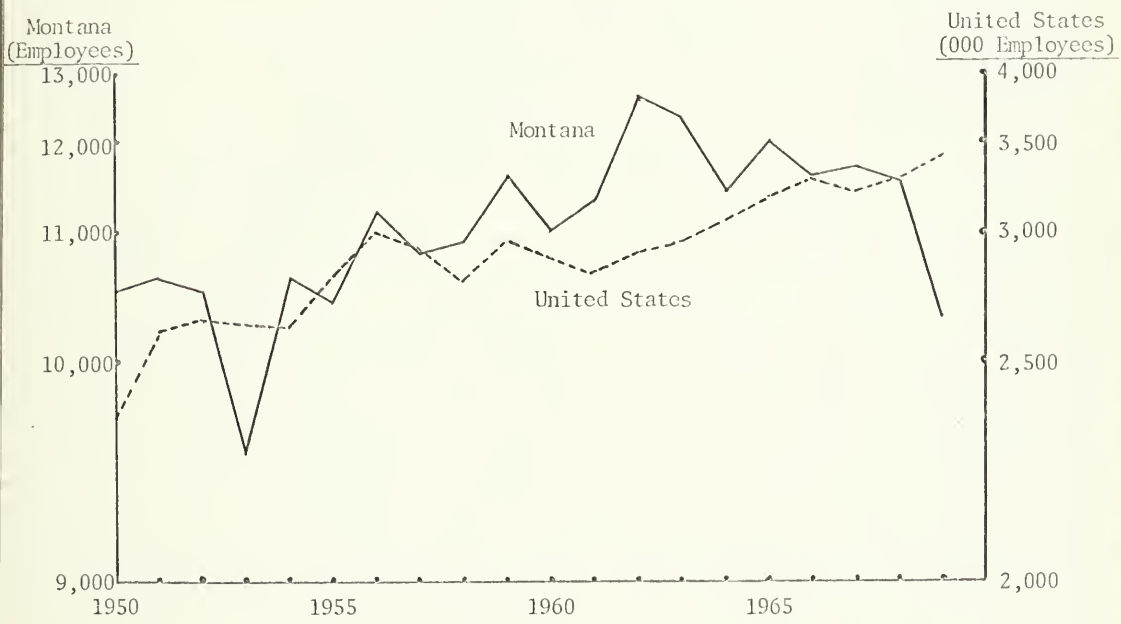
The importance of heavy construction also has been enhanced by the lack of growth in building construction in Montana. In general, and as one might expect, building construction has reflected the slow overall development of the state. An economy which is not expanding rapidly does not require large numbers of new commercial and industrial buildings. Populations which are growing slowly build fewer new homes. And, since 1966 the shortage of mortgage funds and the high interest rates have had a particularly adverse effect on housing construction in Montana.

The Industry Since 1950

The comparison of state and national employment estimates in figures 1-3 confirm that state construction activity has grown more slowly since 1950. So do figures 4-8, which compare the annual value of construction contracts let in both areas since 1956. (The estimates of

FIGURE 4.1

Employment in the Construction Industry, Montana and the United States, 1950-1969



Sources: [Montana] Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees of Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana).

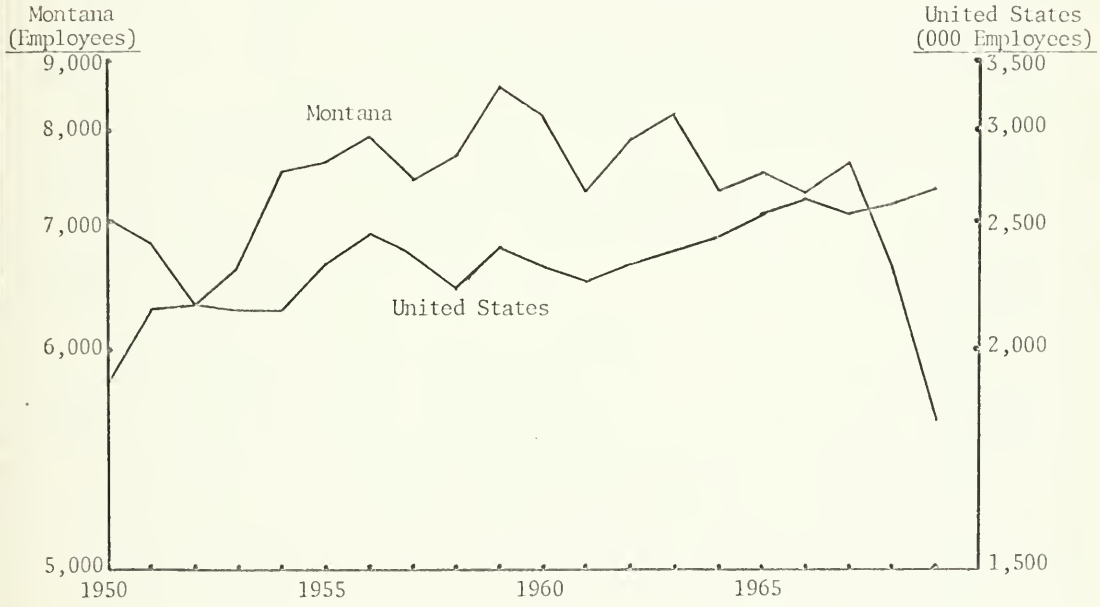
[United States] U.S. Department of Labor, Bureau of Labor Statistics, Division of Industry Statistics, unpublished data (Washington, D.C., March 1970).

Notes: United States data exclude Alaska and Hawaii prior to 1960 and, therefore, are not strictly comparable with later years. Data for 1969 are preliminary.

Wage and salary workers only.

FIGURE 4.2

Employment in General Building Construction and Special Trade Contracting
Montana and the United States, 1950-1969



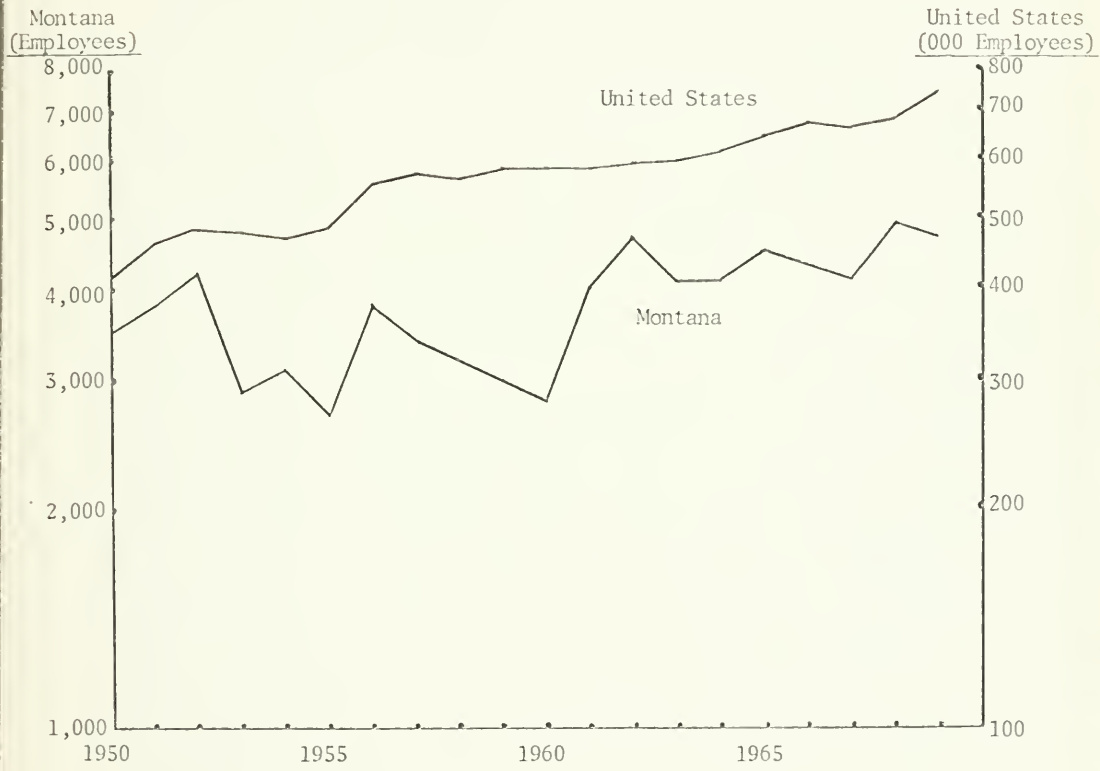
Sources: [Montana] Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana).

[United States] U.S. Department of Labor, Bureau of Labor Statistics, Division of Industry Statistics, unpublished data (Washington, D.C., March 1970).

Note: Wage and salary workers only.

FIGURE 4.3

Employment in Heavy Construction, Montana
and the United States, 1950-1969



Sources: [Montana] Employment Security Commission of Montana and U.S. Department of Labor, Bureau of Labor Statistics, "Employees on Montana Nonagricultural Payrolls," Montana Labor Market: Employment Series by Months, Supplement 1 (Helena, Montana).

[United States] U.S. Department of Labor, Bureau of Labor Statistics, Division of Industry Statistics, unpublished data (Washington, D.C., March 1970).

Note: Wage and salary workers only.

the value of contracts let for Montana probably are subject to considerable error; the small size of the state and the lack of benchmark data make accurate estimation difficult. Nevertheless, the overall pattern of slower growth would seem to be authentic.)

Since 1960, between 1,900 and 2,000 contractors have operated in the state.[4] Many of these firms are sole proprietorships, often special trade contractors, with few or no full time permanent employees. There is little continuity among the proprietors since workers in construction--particularly in housing construction and special trade contracting--tend to establish their own businesses when they see an opportunity, and then return to working for others when such opportunities decline. Those workers who prefer to be employed by others must be extremely mobile; they may work on many separate projects for several different employers during the year. For heavy construction workers, this may mean moving from one community, or one state, to another. Many of the heavy construction workers employed on large projects in Montana are here only temporarily. The reason: general contractors for large-scale projects in the state, other than highway construction, are rarely local firms. Montana does not have construction firms with the capability of building a Libby Dam or installing 150 missile sites. When contractors for projects such as these move into the state, they bring their key men with them. Other workers are quickly attracted to the construction site, some from Montana and some from other states.

Not only has Montana's construction industry grown more slowly than that of the United States, it has also shown greater instability. This

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4. Employment Security Commission of Montana, "Industrial Wages, Wage Earners, Employers, by Counties and Industries," Montana Labor Market, FL Supplement (Helena, Montana).

is especially true of heavy construction. Building construction exhibits considerable cyclical instability, of course, but to a large extent the year-to-year fluctuations in total construction employment in Montana appear to be due to the erratic nature of federal expenditures for heavy construction, rather than to national or state changes in general business conditions. It is also true that the long-term national growth trend has helped smooth the cyclical fluctuations in United States construction, but such a growth trend has not existed in Montana.

It should be noted that contract values (figures 4-8) exaggerate the instability of the industry. A large contract may provide employment for several years, but its impact on value figures occurs only for the year it was let.

The importance of the interstate highway program to Montana's construction industry deserves emphasis. In some recent years, notably 1960, 1963, 1964, and 1969, highway contracts accounted for two-thirds of all nonbuilding construction contracts let in the state.[5] Except for one year--1968--employment in highway construction during the 1960s consistently amounted to more than half the heavy construction employment and around 20 percent of total industry employment.[6] Year-to-year fluctuations in number employed in highway work have contributed to the overall instability of the industry.

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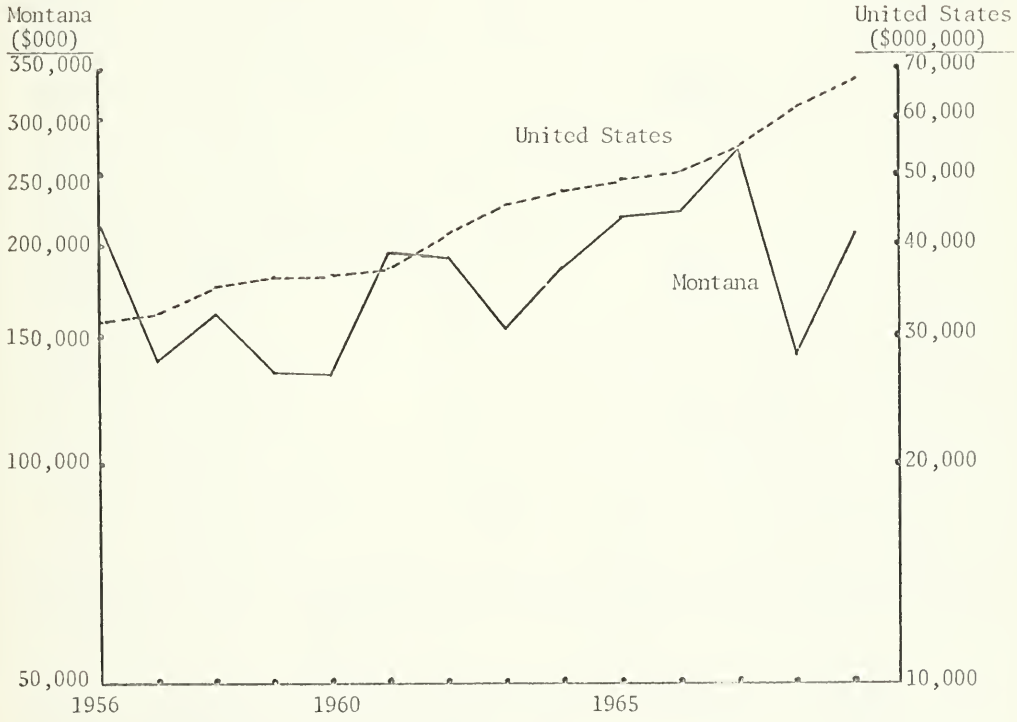
5. Based on unpublished data from the Montana Highway Commission, State Highway Engineer (Helena, Montana, March 1970), and from McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, Region VIII Bulletin (New York, New York).

6. According to unpublished data from the Employment Security Commission of Montana (Helena, Montana).

FIGURE 4.4

Value of Total Construction Contracts, Montana and the United States, 1956-1969



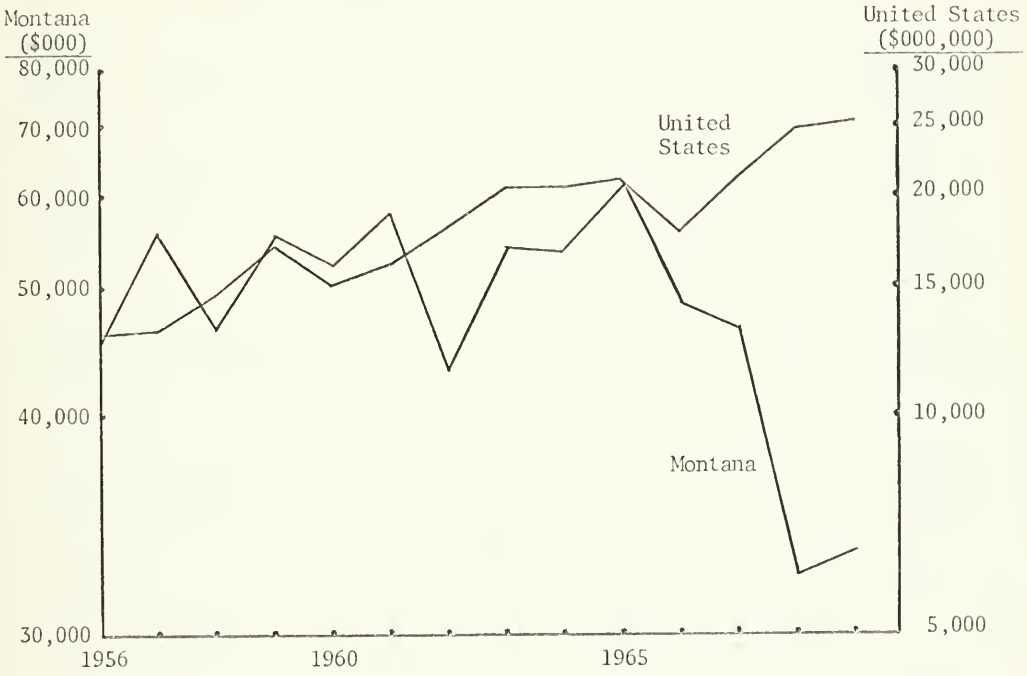
Sources: [Montana] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, Region VIII Bulletin, 1957-1969 (New York, New York).

[United States] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, United States Summary Bulletin, 1957-1969 (New York, New York).

Note: Excludes farm residences.

FIGURE 4.5

Value of Nonfarm Residential Construction Contracts
Montana and the United States, 1956-1969

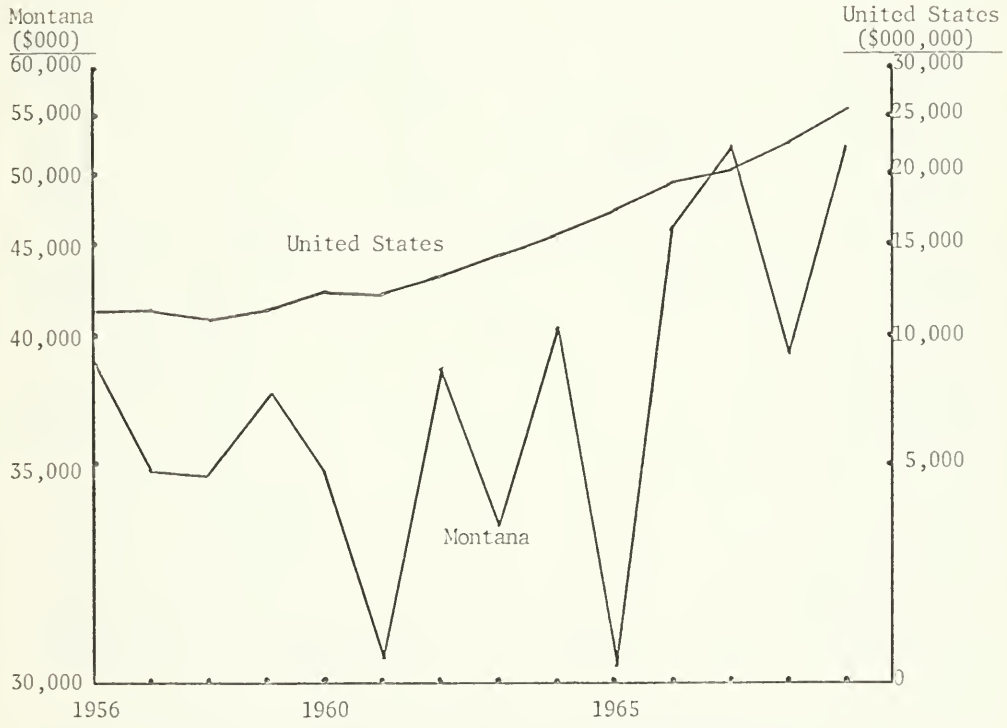


Sources: [Montana] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, Region VIII Bulletin, 1957-1969 (New York, New York).

[United States] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, United States Summary Bulletin, 1957-1969 (New York, New York).

FIGURE 4.6

Value of Nonresidential Building Contracts, Montana and the United States, 1956-1969

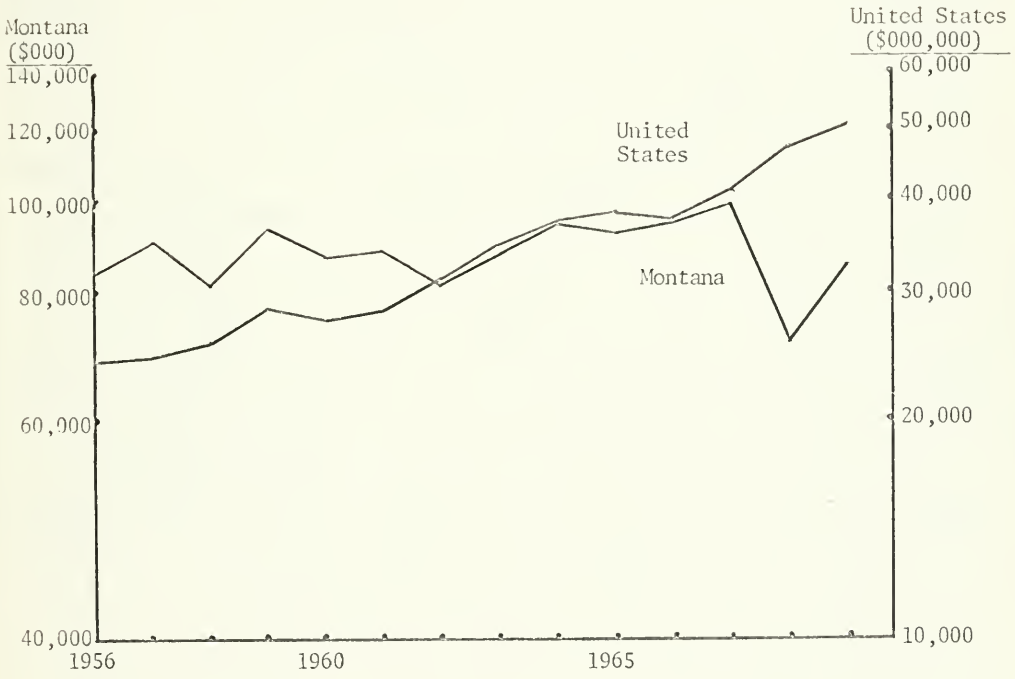


Sources: [Montana] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, Region VIII Bulletin, 1957-1969 (New York, New York).

[United States] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, United States Summary Bulletin, 1957-1969 (New York, New York).

FIGURE 4.7

Value of All Building Contracts, Montana and the United States, 1956-1969



Sources: [Montana] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, Region VIII Bulletin, 1957-1969 (New York, New York).

[United States] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, United States Summary Bulletin, 1957-1969 (New York, New York).

Note: Excludes farm residences.

FIGURE 4.8

Value of Nonbuilding Construction Contracts, Montana and the United States, 1956-1969

Sources: [Montana] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, Region VIII Bulletin, 1957-1969 (New York, New York).

[United States] McGraw-Hill Information Systems Company, F. W. Dodge Division, Dodge Construction Statistics, United States Summary Bulletin, 1957-1969 (New York, New York).

The bulk of highway expenditures and most of the employment since 1958 has involved the interstate system. The system will be completed in 1975 or 1976. Presumably, this means that expenditures on highways might be reduced. The Montana Highway Commission, however, currently is engaged in a functional classification and needs study with projections to 1990 which will no doubt reveal deficiencies in other highway systems and may result in new construction programs. Although Montanans have displayed considerable concern about many types of environmental deterioration, highway construction has generally escaped criticism except where river channels have been disturbed. There is little evidence that the increasing interest in aesthetic values will come to affect public attitudes toward highway construction, at least in the near future.

Among the major federal projects which affected construction activity during the fifties were Hungry Horse Dam (1948-1953); Canyon Ferry Dam (1950-1953); Tiber Dam (1952-1956); the construction of Glasgow Air Force Base, beginning in 1955; expansion at Malmstrom Air Force Base, Great Falls, during most of the 1950s; and the construction of several radar installations around the state, beginning in 1957. During the 1960s, two more federal dams were constructed--Yellowtail (1961-1966) and Clark Canyon (1961-1964)--and a third--Libby Dam--was begun in 1967. Military expenditures were concerned mostly with missiles: 150 Minuteman sites in north central Montana were constructed and equipped between 1961 and 1963; 50 additional missiles were installed during 1965 and 1966 and modifications were made in 1968. (Not all missile-related workers are classified as construction employees. Workers involved in assembling and installing the missiles themselves are classified as manufacturing employees.)

In addition to government dams, three privately owned hydroelectric dams were constructed in the fifties: Cabinet Gorge and Noxon Rapids, both on the Clark Fork River--Cabinet Gorge on the Idaho side and Noxon Rapids on the Montana side of the state border--and both owned by the Washington Water Power Company; and Cochrane Dam, built by the Montana Power Company on the Missouri River near Great Falls. Other major private construction projects have included an aluminum plant, a pulp mill, two steam power plants, a copper concentrating plant, a cement plant, an oil refinery, and pipelines for crude oil and petroleum products. It is an interesting commentary that it is possible to list most major projects over a 20-year period in one brief paragraph.

Large construction projects are temporary and in a state such as Montana, where most localities are not geared for a steady volume of construction activity, they can be disruptive. This is particularly true of some of the federal projects, which generally have been larger than the private projects and frequently have been located in areas of small population and limited activity. Such large-scale projects place a heavy demand on small local communities, especially for housing and medical facilities and for public services such as schools, police and fire protection, and sewage disposal. Hungry Horse Dam in Flathead County is a good example. At the peak of construction in 1951, it employed some 2,500 workers--a considerable strain on the nearest small town, Columbia Falls (population 1,232 in 1950).[7] The influx was also responsible for the

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7. Maxine C. Johnson, The Effects of the Anaconda Aluminum Company Plant on Flathead County, Montana, Regional Study 12 (Missoula, Montana: Bureau of Business and Economic Research, Montana State University [now University of Montana], 1960), p. 27; and U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population: 1960, Number of Inhabitants, Montana, Final Report PC(1)-28A (Washington, D.C.: U.S. Government Printing Office, 1960), table 8, p. 28-14.

establishment of several hastily built small communities near the dam site which seemed to have little reason for existence when construction was finished. However, the repercussions in those communities and in Columbia Falls were lessened by the subsequent establishment of the Anaconda Aluminum plant, a fortuitous circumstance which cannot be relied upon in other instances. Current cases of communities overburdened by a sudden influx of construction workers include towns affected by Libby Dam and the new missile installations in north central Montana.

The aluminum plant was established because of the availability of low-cost, at-site hydroelectric power from Hungry Horse Dam. Power from Libby Dam will be distributed through the northwest grid system of the Bonneville Power Administration; none will be available to industry near the dam site at a reduced rate. Thus the likelihood of alternate employment opportunities for most dam construction employees being available in Lincoln County appears slight. During the summers of 1968 and 1969, they numbered approximately 2,000.[8] Libby and other Lincoln County communities have expanded to accommodate construction workers; there may well be problems when the workers leave.

In 1970, installation of a Safeguard Ballistic Missile Complex (ABM) in Pondera and Toole Counties will begin. The Department of Defense estimates that 8,000 people--workers and their families--may be attracted to the Conrad-Shelby area by the peak of construction in 1972. After

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8. John H. Wicks, John M. Griffing, and E. M. Hutchinson, Impact of Libby Dam Construction on the Economy of Lincoln County, Montana, U.S. Department of Commerce, Economic Development Administration, Technical Assistance Project (Missoula, Montana: Bureau of Business and Economic Research, University of Montana, 1969), p. 6.

1974, when the complex is completed, the department expects approximately 4,000 people (military personnel, civilian workers and their families) to be involved in its operation.[9]

Obviously, an influx of 8,000 people, whose numbers will be cut in half within a few years, can be expected to bring problems to the 2 towns most directly involved--Conrad, population 2,665 in 1960, and Shelby, with a 1960 population of 4,017.[10] The situation is particularly difficult because the construction workers and their families who come to the area, and who may exceed the original population in numbers, will be dependent upon those communities for both business and community services. Once construction is ended, many of the military personnel involved in the operation of the complex will live on site and will be provided with some of these services there.

These comments are meant to point out that large temporary projects are not an unmixed blessing. They can result in rapid and poorly planned expansion of private and public facilities and subsequent readjustment problems, and in developments which lower the overall quality of environment in the affected community. It is interesting that, although the disruptive effects of such projects should be evident by now, and although a national debate as to the wisdom of the ABM installation occurred, little opposition developed in Montana and in the areas to be affected.

The erratic and cyclical nature of Montana's construction industry is one problem; the seasonality of construction activity is another. It is not surprising that construction is more seasonal in Montana than in the United

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9. U.S. Department of Defense, Briefing Text for Presentation to Governor Forrest H. Anderson (Helena, Montana, November 24, 1969).

10. U.S. Department of Commerce, U.S. Census of Population: 1960, Number of Inhabitants, Montana, table 8, p. 28-14.

States in general. Its northern climate almost guarantees this. In recent years, employment has fluctuated from 33 percent below the yearly average--in February--to 27 or 28 percent above, in August.[11] In a year when an average of 11,000 workers were employed, this would mean a low of 7,400 in February and a high of 14,000 in August.

Although low temperatures, frozen ground, snow, rain, and mud all impede outdoor construction, some of the seasonality in the construction industry appears to be the result of tradition and custom. There are new materials and techniques available which make it possible to overcome many unfavorable weather conditions. There have been suggestions that seasonality could be reduced if governments (federal, state and local) required that as much public construction as possible be carried on during winter months.[12] The Canadian government has attempted to implement such policies. It is not clear whether the benefits in terms of higher earnings for workers, lower unemployment insurance costs, and so forth, would exceed the higher costs (which might include a lower quality product).

There are no recent figures which tell us what the typical construction worker earns during a year. There are data on annual rates--that is, what a worker would earn if he were employed all year. These figures, for 1968, are given in table 4.3. The table indicates that heavy construction

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11. Seasonal pattern computed by the Bureau of Business and Economic Research based on data from the Employment Security Commission of Montana.

12. Robert J. Myers and Sol Swerdloff, "Seasonality and Construction," Monthly Labor Review, vol. 90, no. 9 (September 1967), pp. 1-8.

TABLE 4.3

Employment and Earnings in Montana's Construction Industries, 1968

Industry	Average Monthly Employment	Average Earnings (Annual Rate)
All contract construction	11,490	$7,802
General building contractors	2,890	6,596
Heavy construction contractors	4,884	9,183
Highway and street construction	2,287	8,549
Other heavy construction	2,597	9,742
Special trade contractors	3,716	6,925
Plumbing, heating, and air conditioning	831	7,080
Painting, paper hanging, and decorating	278	5,877
Electrical work	799	8,049
Masonry, stonework, tile setting, and plastering	459	6,448
Carpentry and wood flooring	109	5,500
Roofing and sheet metal work	298	5,983
Concrete work	171	6,195
Water well drilling	77	5,867
Miscellaneous special trade contractors	694	7,106

Source: Employment Security Commission of Montana, unpublished data (Helena, Montana).

Note: Wage and salary workers only.

workers earned at a rather high rate--$9,183 per year--while other construction people were paid at a considerably lower rate.

The 1960 Census reported that only 46 percent of all construction workers were employed year round in 1959.[13] Because their work is so seasonal that they are subject to frequent periods of unemployment, some construction workers may earn additional income from employment in other industries.

Housing

The housing industry is of particular interest in any economic study concerned with individual welfare. The U.S. Congress has expressed the philosophy that everyone should be entitled to decent housing, but neither the housing industry nor the federal government has been able to make good on this proposition.

There is considerable visual evidence that housing problems exist in Montana, but few up-to-date measures of housing numbers or quality are available. Until the results of the 1970 Census of Housing become available, one is reduced to speculation about the overall housing situation in the state. The 1960 Census reported that 68 percent of all housing units in Montana were sound and had adequate plumbing; that is, they contained hot and cold running water, flush toilet, and bathtub or shower. The remaining 32 percent were classified either as deteriorating or dilapidated or lacking in complete plumbing facilities (table 4.4). Housing was poorest in the small rural towns, where only 58 percent of all units were classified as sound, with plumbing. Montana had a larger

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13. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population: 1960, Detailed Characteristics, Montana, Final Report PC(1)-28D (Washington, D.C.: U.S. Government Printing Office, 1962), table 130, p. 28-257

TABLE 4.4

Condition of Housing Units in Montana, 1960

Condition and Plumbing	Number of Units				Percentage of Total			
	Total	Urban	Rural Nonfarm	Occupied Farm	Total	Urban	Rural Nonfarm	Occupied Farm
All units	233,277	117,050	87,544	28,683	100.0	100.0	100.0	100.0
In sound condition	181,020	96,173	62,028	22,819	77.6	82.2	70.9	79.6
With all plumbing facilities	158,747	89,421	50,837	18,489	68.1	76.4	58.1	64.5
Lacking only hot water	439	77	266	96	0.2	0.1	0.3	0.3
Lacking other plumbing facilities	21,834	6,675	10,925	4,234	9.4	5.7	12.5	14.8
Deteriorating	39,399	16,636	18,267	4,496	16.9	14.2	20.9	15.7
With all plumbing facilities	23,452	12,329	9,108	2,015	10.1	10.5	10.4	7.0
Lacking only hot water	354	112	222	20	0.2	0.1	0.3	0.1
Lacking other plumbing facilities	15,593	4,195	8,937	2,461	6.7	3.6	10.2	8.6
Dilapidated	12,858	4,241	7,249	1,368	5.5	3.6	8.3	4.8

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Housing: 1960, States and Small Areas, Montana, vol. 1, Final Report HC(1)-28 (Washington, D.C.: U.S. Government Printing Office, 1961), table 2, p. 28-5.

Note: Totals may not add because of rounding.

proportion of poor housing than the country as a whole: for the United States in 1960, the figures were 74 percent sound and 26 percent deteriorated or dilapidated.[14]

There is little reason to believe that Montana's housing position has improved since 1960. Available data on employment and expenditures (figures 4.2 and 4.5) show that housing construction in the state has lagged behind national homebuilding. Both the number of housing construction employees and the value of nonfarm residential contracts have fallen drastically during the latter half of the 1960-70 decade. The results of housing studies in several Montana cities indicate that the quality of housing may also have deteriorated.

A 1969 survey in Butte in connection with its Model Cities Program indicated that only 38 percent of all dwelling units in the Butte urban area were structurally sound, and many of these needed some maintenance. Fifty-five percent of all dwelling units were described as "showing signs of old age and deterioration" and 7 percent were "structurally unsound."[15] Of course, Butte, with its overabundance of economic problems, is not really typical of other cities in the state. The Helena City-County Planning Department classified 58 percent of its housing as standard in 1969; 23 percent was called deficient and 19 percent substandard.[16] A

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14. U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1969, 90th edition (Washington, D.C.: U.S. Government Printing Office, 1969), table 1085, p. 702 (U.S. Department of Commerce, Bureau of the Census, U.S. Census of Housing: 1960)

15. From a report in preparation for the Butte Model Cities program by Paul E. Miller, Assistant Professor of Sociology, University of Montana, Missoula.

16. City-County Planning Department, Proposed City of Helena Initial Housing Element (Helena, Montana, 1969), p. 1.

1967 survey in Billings found 22 percent of housing units in the Billings urban area to be substandard; no count of deficient or deteriorating units was made.[17] Neither the definitions nor the results of these surveys are necessarily comparable to one another or to the 1960 Census; they do serve to indicate, however, that Montana has a good many people who cannot afford decent housing. While this situation is frequently referred to as a housing problem, the more basic problem is inadequate incomes; poor housing is only one indication of the overall predicament of poor people.

Federal government programs to provide "decent, safe, and sanitary housing for families of low income" have been in existence since 1937. The Housing Act of 1937 was followed by the Housing Act of 1949, a "landmark" bill authorizing large numbers of low-cost housing units which never materialized. After 30 years of public housing programs, there were, as of December 31, 1967, only 673,227 low-cost public housing units in the United States. (Another 49,000 were under construction.)[18] This number is considered inadequate by most experts.[19]

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17. Billings-Yellowstone City-County Planning Board, Housing Study for the Billings Metropolitan Urban Area (Billings, Montana, September 1969), p. 4.

18. U.S. Department of Housing and Urban Development, 1967 Statistical Yearbook (Washington, D.C.: U.S. Government Printing Office, 1969), HAA table 10, p. 247.

19. U.S. Congress, House, "Housing Programs," Building the American City, Report of the National Commission on Urban Problems to the Congress and to the President of the United States, 91st Congress, 1st Session, House Document 91-34, pt. 2 (Washington, D.C.: U.S. Government Printing Office, 1968), pp. 56-198.

What will develop under the most recent Housing Act--that of 1968--remains to be seen. Among this Act's most important features are those which attempt to improve public housing programs operated by local housing authorities and those which provide for subsidized interest rates for the construction of housing for low- and moderate-income families wishing to own their own homes or to rent from private owners.

Until recently, there has been little interest in public housing in Montana, and publicly owned low-rent dwellings have been quite an unimportant part of the total housing supply. There were as of December 31, 1967, only 967 low-rent public housing units in the state.[20] This meant that Montana, with approximately 0.37 percent of the households in the country, contained only 0.14 percent of the public low-cost housing units.[21]

Of the total low-rent units in the state, 166 were located on 6 Indian reservations; an additional 165 units were under construction as of December 31, 1967, and should now be in use. Other low-cost public housing was operated by public housing authorities in Anaconda, Butte, Glasgow, Great Falls, Helena, and Richland County. The 225 units in Butte and the 132 in Helena are old projects constructed under the Housing Act of 1937.[22]

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20. U.S. Department of Housing and Urban Development, 1967 Statistical Yearbook, HAA table 10, p. 247.

21. Ibid.; and U.S. Department of Commerce, Statistical Abstract of the United States: 1969, table 44, p. 37.

22. U.S. Department of Housing and Urban Development, Housing Assistance Administration, Statistics Branch, Local Authorities Participating in Housing Assistance Administration Low-Rent Programs, as of December 31, 1967, Microfilm Card 3083 (February 1969), p. 68.

There were also in the state, as of December 31, 1967, 336 units in 4 projects providing housing for the elderly. These projects are operated by nonprofit organizations under favorable mortgage and interest terms. The lenders are insured by the Federal Housing Administration.[23]

Although one City-County Planning Board in the state reported in 1969 that the general public has an attitude that nothing needs to be done about substandard housing, a demand for housing programs has arisen. As low-income people become more vocal and as housing conditions continue to deteriorate, the insistence that communities do something about housing will grow stronger. In May 1970, there were 50 units under construction for a new public housing authority in Whitefish;[24] at least one city (Helena) had an application for additional units pending, but no other construction was underway.

In addition to public housing, federal programs provide for other kinds of subsidized housing. During the first 5 months of 1970, there were 439 units of housing either completed or being constructed and 625 units committed for under various federal programs. Included were multi-unit rentals, some of which were reserved for the elderly, and some single family homes being constructed for sale. Low interest rates and rent supplements are among the types of subsidies involved.[25] These programs, it should be noted, are designed for the lower-middle income group and are of little assistance to families at or below the poverty level.

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23. U.S. Department of Housing and Urban Development, 1967 Statistical Yearbook, HAA table 39, p. 270.

24. Reply to written inquiry to T. Mark Radcliffe, Acting Director, Federal Housing Administration, U.S. Department of Housing and Urban Development, Helena, Montana, June 12, 1970.

25. Ibid.

One wonders whether the current interest in federal housing programs on the part of contractors is not a result of the decline in the regular housing market; if so, the interest may well decline when the market improves. Or, perhaps federal programs are just beginning to take hold in Montana. In any event, there is presently more activity and interest in subsidized housing than ever existed before. Since the need is great, further use of these programs should be encouraged.

In addition to public housing and publicly assisted housing, there also are military housing units in the state. At Malmstrom Air Force Base, Great Falls, there were 1,683 family units as of July 1, 1968.[26] Glasgow Air Force Base, which was closed in 1968, also provided family housing for its personnel. The Department of Defense has announced that housing will be provided for personnel manning the new ABM missile sites near Conrad and Shelby.

Some public housing is provided by the state, particularly in conjunction with the University system, which has taken advantage of federal loans to build student dormitories and student and faculty family housing projects. These facilities are provided on a cost basis. As of December 31, 1967, the federal college housing loan program has financed housing facilities to accommodate 5,820 persons on Montana campuses.[27]

The extent of the current housing problem in Montana will be better known when the results of the 1970 Census become available. It is clear

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26. U.S. Department of Housing and Urban Development, Federal Housing Administration, Analysis of the Great Falls, Montana, Housing Market, as of July 1, 1968 (Washington, D.C, March 1969), p. 16.

27. U.S. Department of Housing and Urban Development, 1967 Statistical Yearbook, HAA table 45, p. 275.

that the housing industry--in Montana and the United States--has been unable to provide low-cost housing for people of low and moderate incomes. The most desirable solution, of course, would be the development of new technology which would permit the profitable construction of low-cost housing by the industry. Among the new concepts being advanced for housing are modules made of precast concrete, wood, or reinforced plastics.[28] Development of a capability to produce large-scale, low-cost housing will not only require more efficient building practices, but changes in building codes, a reduction of seasonality and a reduction in restrictive work practices--in effect, a revolution in the housing industry. Such a revolution is not likely to originate in Montana, with its small-scale builders. Nevertheless, the demands for better housing for low-income people, just beginning to be heard in Montana, will continue and probably will accelerate in the years ahead. What response these demands will bring will depend upon local attitudes and congressional appropriations.

While some Montanans cannot provide decent housing for themselves at one location, others sometimes have difficulty deciding whether to spend the weekend at home or at the cabin. The move toward a second home--a summer place at the lake or a ski cabin in the mountains--is an increasingly important trend among Montana's more affluent citizens. Many out-of-staters have been attracted to western Montana in a search for uncrowded areas or second homes. The first condominium-type arrangements, on Flathead Lake and at the Big Mountain and Red Lodge ski areas, are underway and have attracted both Montanans and out-of-staters. The

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28. "Where Housing Will Break New Ground," Business Week, no. 2114 (March 7, 1970), p. 32.

National Planning Association predicts that a second home will become "nearly as common place by 1980 as the second car is today."[29] The effects of this trend in Montana will be felt mostly in the western part of the state. Indeed, it is no news to most businessmen in communities such as Polson and Bigfork that summer residents already have become important customers.

The Outlook

For the next few years, a continued high volume of heavy construction in Montana--all federally financed--is assured. Libby Dam will not be completed until 1972; the ABM installations in north central Montana will be underway until 1974; and the interstate highway system will not be completed until 1975 or 1976. Thus employment in heavy construction is likely to remain at the high levels of recent years, and perhaps increase, during most of the decade.

What will happen in housing and in nonresidential construction largely depends upon the availability of mortgage funds and the level of interest rates. Some increase in nonresidential building surely will occur when financing becomes more readily available. But Montana's generally slow economic growth rate militates against any great expansion in construction and unless some currently unforeseen, large-scale nonresidential project comes along, the best hope for increased construction employment probably lies in housing. There are a number of reasons why homebuilding nationally is expected to pick up rapidly when money becomes

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29. Ahmad Al-Samarrie, Economic Projections to 1980: Growth Patterns for the Coming Decade, National Planning Association, Center for Economic Projections, National Economic Projections Series, Report 70-N-1 (Washington, D.C.: National Planning Association, 1970), p. 12.

available, among them the growing numbers of new households; the backlog of demand for houses built up during recent years; and the growing market for second homes. All of these factors also affect Montana, although perhaps to a lesser degree. It is clear, however, that Montanans need more housing; when money becomes available, a Montana-sized housing boom may occur. When this happens, employment by general building contractors should recover substantially from the very low numbers of 1968 and 1969.

Based on its assessment of the overall economic outlook for the state, the Montana Economic Study expects that during the 1970s construction activity will grow more slowly here than in the United States. Total contract construction employment in 1980 may amount to 12,300, or about the same as during the peak years of 1962 and 1963.[30] This would mean approximately 1,000 more construction workers than in 1968 (and 2,000 over the depressed employment figures of 1969). This 1980 estimate could, of course, be low, should one or two very large projects happen to be underway that year. But these are the kinds of developments which cannot be predicted; in their absence the construction industries are not likely to provide large numbers of new jobs.

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30. Projections of employment in Montana by major industry group, are set forth in "The Montana Economy," Research Report of the Montana Economic Study, pt. 1, chap. 4 (Missoula, Montana: Bureau of Business and Economic Research, University of Montana, in progress).